

A MODEL FOR TESTING DIFFERENTIAL
ASSOCIATION THEORY

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Chapter 1

INTRODUCTION

The objective of this thesis is to investigate the effectiveness of Edwin Sutherland's theory of differential association for predicting and explaining juvenile delinquency through the construction of a causal model to test the theory. The purpose of this introductory chapter is to state the problem, in terms of the real world and sociological perspectives, and to list the objectives of the research.

THE PROBLEM

The problem to be studied may be stated in both real world and sociological terms. The real world perspective defines the area for investigation while the sociological perspective provides a framework within which to conduct the investigation.

The Real World Perspective

While the extent of juvenile delinquency and even the question of what constitutes juvenile delinquency is not clear, it is generally believed in American society that juvenile delinquency is an area of serious concern for society. The consequences of crime and juvenile delinquency in terms of monetary losses alone have made this problem

a focal concern for many governmental agencies and private groups. The President's National Crime Commission reported in 1967 that, in the United States alone, nearly three billion dollars is lost annually as a result of property losses through crime.¹ The concern generated by these losses is further heightened by the fact that this figure reflects only reported crimes and does not include expenditures on law enforcement and judicial review. While the figure quoted by the National Crime Commission represents losses caused by both adult and juvenile offenders, it is important to note that crime rates are proportionately higher among juveniles.²

The human costs of delinquency are perhaps an even more serious concern for the society. Knowing the numbers of victims created by reported delinquent acts does not begin to describe the seriousness of delinquency. Besides the immediate victims of the act, the delinquent and those persons close to him are subject to hardship and suffering as a result of the act. The fear for personal safety and for the security of private property has prompted many groups to focus their attention on crime and juvenile delinquency.

¹Simon Dinitz, Russell R. Dynes and Alfred C. Clark (eds.), Deviance: Studies in the Process of Stigmatization and Societal Reaction (New York: Oxford University Press, 1969), p. 27.

²Ibid.

Concern generated by the costs and the apparent increase in the rate of juvenile delinquency has resulted in a search for its causes. Juvenile delinquency has been explained, in the past, by such diverse factors as race, defective physique, climate, capitalism, feeble-mindedness and lack of recreation.¹ Most of these explanations have fallen into disrepute, and other explanations have begun to replace them. The question remains, however, whether any of these theories can adequately explain the genesis of delinquent behavior.

The Sociological Perspective

No general agreement has been reached on the causes of juvenile delinquency. Since resources do not permit a full-scale comparative analysis of the explanations currently commanding respect, the writer has felt compelled to select one theory for in-depth study. Because the theory of differential association presented by Sutherland most closely follows the writer's own sociological perspective and has been widely discussed in sociology, it was chosen for analysis. The problem investigated in the thesis, then, is whether or not the differential association theory, recast as a causal model, adequately reflects the causes

¹John M. Martin and Joseph P. Fitzpatrick, Delinquent Behavior: A Redefinition of the Problem (New York: Random House, 1967), p. 31.

of delinquency in the real world. This problem is developed from a larger sociological frame of reference within which the investigation is conducted.

Juvenile delinquency is a subtype of criminal behavior limited to individuals below the age of majority and is more specifically defined as those acts for which the individual of minority age may legitimately be detained by law enforcement officials. While many studies have relied upon the criteria of arrest and adjudication, these conditions are not required here. Commission of an illegal act, whether brought to the attention of law enforcement officials or not, by an individual of minority age is all that is required to meet the definition of juvenile delinquency.

Durkheim pointed out that crime (and juvenile delinquency as a subtype of crime) is present in all societies of all types.¹ It was his contention that crime was both normal and necessary to society. Regarding the normality of crime, Durkheim made the following statement:

In the first place crime is normal because a society exempt from it is utterly impossible. Crime, we have shown elsewhere, consists of an act that offends certain very strong collective sentiments. In a society in which criminal acts are no longer committed, the sentiments they

¹Lewis A. Coser and Bernard Rosenberg (eds.), Sociological Theory: A Book of Readings (3rd ed., Toronto: MacMillan, 1969), p. 571.

offend would have to be found without exception in all individual consciousnesses, and they must be found to exist with the same degree as sentiments contrary to them. Assuming that this condition could actually be realized, crime would not thereby disappear; it would only change its form, for the very cause which would thus dry up the sources of criminality would immediately open up new ones.¹

In support of the necessity of crime, Durkheim further asserted:

Crime is, then, necessary; it is bound up with the fundamental conditions of all social life, and by that very fact it is useful, because these conditions of which it is a part are themselves indispensable to the normal evolution of morality and law.²

If, as Durkheim suggested, crime is a phenomenon normal to organized human society, it is a legitimate subject for sociological inquiry. Juvenile delinquency as a subtype of crime, also carries this legitimacy as a subject of scientific investigation.

While juvenile delinquency may be viewed as a subtype of deviant behavior on the societal level, it may also be seen as conforming behavior on the small groups level. Vaz has suggested that adolescents constitute a social system with distinguishable values, attitudes and norms which only partially reflect the parental class culture.³ The differences between the adolescent culture

¹Ibid., p. 572.

²Ibid., p. 574.

³Edmund Vaz, Middle-Class Juvenile Delinquency (New York: Harper and Row, 1967), p. 2.

and parental culture may be reflected in the delinquency rate when adolescent norms have strong adherents. Although the social disorganizational perspective indicates that crime and delinquency result when participants in the social group have unequally accepted or failed to internalize the normative requirements of the group, this condition is not required for the presence of delinquent behavior. If the group is organized for or is supportive of delinquent behavior, a degree of organization rather than disorganization may characterize delinquent behavior.

Social disorganization can account for variance in crime rates in comparative studies since these studies take into consideration only societal norms; however, social disorganization is not sufficient to account for individual criminal behavior. An explanation of individual delinquency must take into account the fact that the individual does not learn his values, attitudes and norms from "society" but from individuals who are members of disparate social groups each having distinct norms, values and attitudes. Whether or not the learning process results in delinquent behavior is contingent upon the ratio of contacts with criminal patterns to contacts with noncriminal and anti-criminal patterns. This is the essence of Sutherland's theory of differential association. Sutherland alluded to this social organizational perspective in the explanation of crime and delinquency when he described his theory of individual delinquency as being based on the postulate

that "crime is rooted in the social organization and is an expression of that social organization"¹

OBJECTIVES

Using Sutherland's social organizational perspective, the writer will construct and evaluate a causal model based on his theory of differential association. The present writer will utilize the model to explain and predict individual juvenile delinquency. The primary purpose of this thesis, then, is to build and evaluate a causal model representing Sutherland's theory of differential association. To meet this general objective, the following specific objectives will be met:

1. Identification of concepts and propositions at a theoretical level which are representative of differential association theory
2. Development of empirical measures for the relevant concepts
3. Building of an adequate causal model with path analysis techniques to explain and predict delinquency in the context of differential association theory
4. Discussion of the implications of the present research and suggestions for future research.

¹Edwin Sutherland and Donald R. Cressey, Principles of Criminology (8th ed, Philadelphia: J. B. Lippincott, 1970). p. 77.

In order to achieve both the general and specific objectives proposed, the following order of presentation will be followed in the thesis.

Chapter 2 will focus upon a review of relevant theoretical and empirical literature related to the differential association theory. Concepts and propositions will be identified and ordered in a causal model framework representing Sutherland's differential association theory.

Chapter 3 will focus upon research methodology. The research population, sampling procedures, and operational definitions of concepts will be presented. The techniques and assumptions of path analysis will be presented along with a set of recursive regression equations which represents the causal model developed in Chapter 2.

Chapter 4 will focus upon the findings from empirical evaluation of the model utilizing path analysis techniques. The significant paths will be determined, and the direct effects, residual paths, and indirect effects will be presented.

Chapter 5 will focus upon the implications of the research for differential association theory and possible avenues for further research will be suggested.

Chapter 6 will summarize the entire thesis.

Chapter 2

THEORY DEVELOPMENT

The purpose of this chapter is to focus upon Edwin H. Sutherland's theory of differential association as a framework for explaining and predicting individual juvenile delinquency. Both the original version presented in 1939 and its reformulation which appeared in 1947 will be discussed. A review of juvenile delinquency literature that developed in response to Sutherland's theory will be presented to indicate the directions empirical research has taken to test the theory. A set of concepts will be identified as representative of factors involved in the theory and ordered in a causal model for the purpose of testing the theory.

EVOLUTION OF DIFFERENTIAL ASSOCIATION THEORY

The theory of differential association was first formally presented as a set of hypotheses in 1939 and reformulated in 1947 by Edwin H. Sutherland. The first version of the theory relied heavily upon a social dis-organizational perspective and was stated as follows:

1. The processes which result in systematic criminal behavior are fundamentally the same in form as processes which result in systematic lawful behavior.

2. Systematic criminal behavior is determined in a process of association with those who commit crimes, just as systematic lawful behavior is determined in a process of association with those who are law-abiding.
3. Differential association is the specific causal process in the development of systematic criminal behavior.
4. The chance that a person will participate in systematic criminal behavior is determined roughly by the frequency and consistency of his contacts with patterns of criminal behavior.
5. Individual differences among people in respect to personal characteristics or social situations cause crime only as they affect differential associations or frequency and consistency of contacts with criminal patterns.
6. Cultural conflict is the underlying cause of differential associations and therefore of systematic criminal behavior.
7. Social disorganization is the basic cause of systematic criminal behavior.¹

Sutherland summarized the content of his initial theory of differential association in the following statement:

Systematic criminal behavior is due immediately to differential associations in a situation in which cultural conflicts exist, and ultimately to the social disorganization in that situation. A specific or incidental crime of a particular person is generally due to the same process, but it is not possible to include all cases because of the adventitious character of delinquency when regarded as specific or incidental acts.²

¹Edwin H. Sutherland, Principles of Criminology (3rd ed.; Philadelphia: J.B. Lippincott, 1939), pp. 4-9.

²Ibid., p. 9.

Sutherland was, in 1939, of the opinion that crime, on both the societal and individual levels, was a result of differential associations with criminal and noncriminal elements representing conflicting cultural definitions in regard to legal codes. The probability of associations with either criminal or noncriminal definers of the legal code, he believed, was a function of the cultural conflict or social disorganization present in the society at any given time. Although Sutherland stressed differential associations as the prime determinants of criminal behavior, he also emphasized social disorganization, in the initial version of the theory, as the broader underlying cause of criminal behavior.¹

Shortly after publication, Sutherland's theory was sharply criticized by Arthur L. Leader. Leader cited five weaknesses which, he thought, impaired the adequacy of the theory. These weaknesses were:

1. Failure to define systematic criminal behavior and consistency of contacts
2. Failure to take into account the meaning of the contacts for the individual
3. Failure to explain why individuals differentially associate with one another
4. Failure to clarify why criminals who associate together commit different types of crime employing differing techniques

¹Ibid.

5. Failure to explain why some individuals who come in contact with criminals do not become systematic criminal offenders.¹

While Leader suggested that differential association was one factor in a causal chain leading to criminal behavior, he was more concerned with what he considered the more basic causes of criminal behavior which were, in his opinion, individual personality patterns and ways of satisfying needs. Exposure to criminal behavior patterns alone, he contended, did not result in criminal activity, the reaction to such exposure was conditioned by the individual's personality and his ways of satisfying needs. When needs could not be met through normal channels, the individual sought alternatives which were congruent with his personality. Among the alternatives was criminal activities learned through criminal contacts. The reason a person sought particular associations and the meaning of the associations for the individual were explained by the individual's personality and his ways of satisfying needs.²

Leader's approach to the explanation of criminal behavior was summarized in his statement:

Individuals are different and their ways of satisfying needs are different. For this reason, they associate differentially. The exposition to criminal patterns of behavior promotes criminal

¹Arthur L. Leader, "A Differential Theory of Criminality," Sociology and Social Research, XXVI (Sept.-Oct., 1941), 45.

²Ibid., pp. 45-48.

activity only when noncriminal behavior is inaccessible or less satisfying and when the criminal patterns assume definite psychological meanings. The criminal patterns vary in their effect according to who presents them, the type of activity condoned, the previous attitudes toward such activity, and present personality pattern.¹

In a rejoinder to Leader, Sutherland abandoned the use of the term "systematic" for describing criminal behavior, which he indicated had been introduced only for the sake of convenience. Consistency was defined as the character of the associations; association with delinquent patterns or nondelinquent patterns alone would be completely consistent association. Sutherland beleived that the two questions brought out by Leader, how are associations determined and how do associations determine delinquency, were separate and distinct inquiries. The factors which determine associations are said to be only indirectly related to delinquency in that they described the setting of criminal activity. The hypothesis of differential association had a direct relationship to the causes of delinquency and was therefore a more proper focus for investigation. Mere exposure, according to Sutherland, did automatically determine delinquency unless inhibiting phvsical or mental conditions were present.²

¹Ibid., p. 44.

²Edwin H. Sutherland, "Rejoinder," Sociology and Social Research, XXVI (Sept.-Oct., 1941), 50-52.

The meaning of associations for the individual, Sutherland felt, was not a desirable addition to the theory. First, according to Sutherland, meaning was largely determined by the frequency and consistency of associations and second, the term "meaning", as applied by Leader, found its definition in the frustration-compensation theory of psychiatry and was inadequate for explaining why one act is substituted for another. The explanation that delinquent behavior is substituted for legitimate behavior on the grounds of expediency, suggested Sutherland, was no explanation at all. Although Sutherland believed that "meaning" added nothing to the theory, he speculated that it was possible that it and other factors could have been substituted for frequency in the theory for the purpose of greater specificity (in the 1947 version of the theory, the duration, priority and intensity variables were added to the frequency variable and consistency was deleted).¹

Although Sutherland staunchly defended his first version of the differential association theory, the subsequent 1947 edition of Principles of Criminology contained a reformulation of his theory which appeared to take some of Leader's criticisms into consideration. In his initial formulation of the theory in 1939, Sutherland conceived of social disorganization as the "basic cause of

¹Ibid., p. 52

systematic criminal behavior,"¹ but in his 1947 version this view was modified to take into account differential social organization. While it may appear that this distinction is semantic rather than substantive, a close reading of Sutherland's discussion concerning the broader perspective of criminal activity indicates that this is not the case.

Sutherland asserts that "the person's associations are determined in a general context of social organization."² The individual comes into contact with others who are members of various groups having distinct values, attitudes and norms. These groups may be organized for criminal or antirriminal behavior. While the group or groups may not possess values, attitudes and norms congruent with those of the larger society, they do nevertheless have distinct group prescriptions for behavior. Since the individual may have associations with members of disparate groups, there may be a conflict over which prescriptions he will accept. The conflict which arises is not a result of social disorganization, which implies that social group norms have not been accepted or internalized, but of differential

¹Edwin H. Sutherland, Principles of Criminology, p. 9.

²Edwin H. Sutherland and Donald R. Cressey, Criminology (8th ed.; Philadelphia: J.B. Lippincott, 1970), p. 77.

social organization which takes into account the fact that society is characterized by many groups each having distinct norms, attitudes and values. When this distinction is considered, the crime rate may be seen as an expression of differential group organization and individual participation in criminal activities as a reflection of differential associations with members of groups holding values, attitudes and norms favorable to violation of law.

Sutherland was, in the opinion of the present writer, trying to clarify the distinction between differential social organization and social disorganization as a result of a change in perspective. In the initial formulation of the theory in 1939 he stated, as a hypothesis of his theory, "social disorganization is the basic cause of systematic criminal behavior."¹ After reformulation in 1947, however, he asserted "the postulate upon which this theory is based, regardless of the name, is that crime is rooted in the social organization and is an expression of that social organization."²

Using the social organizational perspective, Sutherland revised his theory in 1947. The following propositional formulation of the theory of differential association appeared in the 8th edition of Criminology and has remained unchanged since 1947.

¹See page 10.

²See page 6.

1. Criminal behavior is learned. Negatively, this means that criminal behavior is not inherited, as such; also, the person who is not already trained in crime does not invent criminal behavior, ...
2. Criminal behavior is learned in interaction with other persons in a process of communication. This communication is verbal in many respects but includes also "the communication of gestures."
3. The principal part of the learning of criminal behavior occurs within intimate personal groups. Negatively, this means that the impersonal agencies of communication, such as movies and newspapers, play a relatively unimportant part in the genesis of criminal behavior.
4. When criminal behavior is learned, the learning includes (a) techniques of committing the crime, which are sometimes very complicated, sometimes very simple; (b) the specific direction of motives, drives, rationalizations, and attitudes.
5. The specific direction of motives and drives is learned from definitions of the legal codes as favorable or unfavorable. In some societies an individual is surrounded by persons who invariably define the legal codes as rules to be observed, while in others he is surrounded by persons whose definitions are favorable to the violation of the legal codes. In our American society these definitions are almost always mixed, with the consequence that we have culture conflict in relation to the legal codes.
6. A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law. This is the principle of differential association. It refers to both criminal and anticriminal associations and has to do with counteracting forces. When persons become criminal, they do so because of contacts with criminal patterns and also because of isolation from anticriminal patterns...
7. Differential associations may vary in frequency, duration, priority, and intensity. ...In a precise description of the criminal behavior of a person, these modalities would be rated in quantitative form and a mathematical ratio be reached. A formula in this sense has not been

developed, and the development of such a formula would be extremely difficult.

8. The process of learning criminal behavior by association with criminal and anticriminal patterns involves all of the mechanisms that are involved in any other learning. Negatively, this means that the learning of criminal behavior is not restricted to the process of imitation. A person who is seduced, for instance, learns criminal behavior by association, but this process would not ordinarily be described as imitation.
9. While criminal behavior is an expression of general needs and values, it is not explained by those general needs and values, since noncriminal behavior is an expression of the same needs and values. ...The attempts by many scholars to explain criminal behavior by general drives and values, such as the happiness principle, striving for social status, the money motive, or frustration, have been, and must continue to be, futile, since they explain lawful behavior as completely as they explain criminal behavior. They are similar to respiration, which is necessary for any behavior, but which does not differentiate criminal from non criminal behavior.¹

An examination of the hypotheses comprising the substance of differential association theory indicates that juvenile delinquency is a result of a differential socialization process. Access to associations with individuals holding favorable or unfavorable definitions toward violation of law is largely determined by the differential social organization existing in the society at a given time. It is this differential association resulting from differential social organization that is the prime determinant of criminal behavior in the individual and in the larger society.

¹Sutherland and Cressey, op. cit., pp. 75-77.

Within the intimate, face-to-face associations maintained by the individual, processes of interaction are developed. From this interaction, the individual learns normative prescriptions (or definitions) regarding all forms of social behavior, among these are definitions favorable or unfavorable to violation of law. Although the individual may learn definitions of behaviors from all those he comes in contact with, the principal part of this learning occurs within intimate personal groups such as the peer group and family. Sutherland discounts the mass media as playing a relatively unimportant role. It cannot be assumed that each member of the intimate personal groups will exert an equal amount of influence upon the individual, however, the strength of the influences exerted is a function of the extent to which frequency, duration, priority or intensity characterize the association.

Individual delinquency, then, is a result of the individual's learning experiences regarding definitions favorable or unfavorable to violation of law. The processes involved in the learning of criminal behavior are the same as those which are involved in the learning of other forms of social behavior. This does not mean, however, that the individual learns only criminal or noncriminal definitions, and thereby becomes or does not become a criminal. The definitions he encounters may be mixed, including criminal, noncriminal and anticriminal definitions. The acceptance and internalization of particular definitions as well as

subsequent action by the individual is a function of the ratio to which the definitions encountered are favorable or unfavorable to violation of law.

RESPONSES TO THE THEORY

Sutherland's presentation of the revised formulation of differential association theory in 1947 has generated a great deal of comment and controversy among writers in the areas of criminology and juvenile delinquency. Responses to the theory have generally been of four types: (1) those which seek to demonstrate the applicability of the theory, (2) those which utilize Sutherland's theory as a basis for empirical research, (3) those which seek practical application of the theory to problems of prevention and control and (4) those which suggest or propose reformulation of the theory. Material representing each of these response types will be presented and discussed in this section of the thesis.

Applicability of the Theory

While the theory of differential association was intended to account for the genesis of all types of criminal behavior, there has been some speculation that the theory is inapplicable to various types of criminal behavior such as white collar and compulsive crimes. The applicability of the theory to white collar crime was

demonstrated by Cressey in his study of trust violators.¹ Drawing upon Sutherland's earlier work on white collar crime,² Cressey operationalized the theory for application to those individuals convicted for embezzlement. Two conditions (possession of appropriate information and technical skills and possession of rationalizations for criminal violation) were presented as necessary for violation of trust and analyzed to "determine whether or not these conditions can be present in individual cases without the person's having had an 'excess' of associations with criminal behavior patterns."³ Although the learning of technical skills was demonstrated to be independent of associations with criminal behaviors, contact with criminal behavior patterns was believed necessary for trust violation.

In a later discussion of the applicability of the theory to compulsive crimes, Cressey pointed out that these types of law violating behaviors were not a proper subject for the sociological investigation of criminal behavior. He contended that volition was a necessary component in the commission of criminal acts; if volition was not

¹Donald R. Cressey, "Application and Verification of the Differential Association Theory," Journal of Criminal Law, Criminality, and Police Science, XLIII (May-June, 1952), 43-52.

²Edwin H. Sutherland, White Collar Crime (New York: Dryden Press, 1949).

³Donald R. Cressey, "Application and Verification of the Differential Association Theory," p. 44.

present, no crime had been committed. Acts committed without volition were labeled insane acts. Cressey believed, however, that behaviors traditionally labeled compulsive were actually motivated and therefore involved the same developmental processes as other criminal behavior. In this case, they were not considered exceptions to the differential association theory.¹

Recognizing that the statement of differential association was "neither precise nor clear,"² Cressey attempted to clarify its essence in a 1960 article, again asserting its applicability to all criminal behaviors. He further pointed out in another article that Sutherland's published statement of the theory gave the incorrect impression that it was little concerned with general crime and delinquency rates.³ As a result of this error in communication, empirical tests of the theory have generally focused upon the individual. There appears to be a need, according to Cressey, for operationalization of the theory on a more general level to account for variations in crime and juvenile delinquency rates.⁴

¹Donald R. Cressey, "The Differential Association Theory and Compulsive Crimes," Journal of Criminal Law, Criminology and Police Science, XLV (May-June, 1954), 29-40.

²Donald R. Cressey, "The Theory of Differential Association: An Introduction," Social Problems, VIII (Summer, 1960), 3.

³Ibid.

⁴Ibid.

Empirical Evaluation of the Theory

The first attempt to operationalize the revised formulation of Sutherland's theory was a study of incarcerated trust violators in 1952. The purpose of that study was to establish the applicability of the theory to white collar crime as discussed earlier.¹

Sutherland's theory was also operationalized by James F. Short, Jr. who focused upon the frequency, priority, duration and intensity characteristics of associations producing delinquency. In his 1957 study, both institutionalized and noninstitutionalized boys and girls were asked to identify their friends in terms of delinquency producing and inhibiting characteristics to determine whether differential access to delinquent values was greater in institutionalized children. Although the results of the study were supportive of the theory, the research was limited to testing only a portion of the theory.²

In a later article based upon the same study, Short isolated the intensity, priority, frequency and duration variables for in-depth analysis. He concluded that all of these variables were important to the explanation of delinquency.³ Replication of the study by Harwin Voss

¹See page 21.

²James F. Short, Jr., "Differential Association and Delinquency," Social Problems, IV (January, 1957), 233-239.

³James F. Short, Jr., "Differential Association With Delinquent Friends and Delinquent Behavior," Pacific Sociological Review, I (Spring, 1958), 20-25.

supported Short's conclusions.¹

Reiss and Rhodes focused upon small groups for their empirical test of the differential association theory. The basis for this type of research, it was pointed out, was the fact that less than 20 percent of the individuals in juvenile court samples were lone offenders and that the modal size of offending groups was two or three participants. The purpose of this study was to demonstrate that Sutherland's theory could be used to differentiate between associations formed as a result of value homophily and those associations which result in the learning of delinquent behavior. Information was gathered on 299 triads and 79 dyads of male high school students to accomplish this end. Reiss and Rhodes found that boys generally chose friends whose law-abiding or delinquent behavior was similar to their own, but were unable to support the differential association hypothesis. While the association of boys with the same kind of delinquent behavior in close triads was greater than chance it was well below that expected from the theory, and the results were not independent of social class.²

¹Harwin Voss, "Differential Association and Reported Delinquent Behavior: A Replication," Social Problems, XII (Summer, 1964), 78-85.

²Albert J. Reiss, Jr. and A. Lewis Rhodes, "An Empirical Test of Differential Association Theory," Journal of Research in Crime and Delinquency, I (January, 1964), 5-18.

Practical Application of the Theory

The implications of Sutherland's theory for the diagnosis and treatment of criminals was discussed by Cressey in a 1959 article. Cressey indicated that the popular clinical approach to criminal reform has concentrated on the reform of the individual without reference to the persons from whom criminal behaviors were acquired. The differential association theory, however, suggests that attempts to change the individual's behavior patterns will be unsuccessful unless they are directed at changing the behavior and attitudes of the groups in which the individual is a member. Treatment of criminals based on a group perspective, Cressey suggested, might involve the use of antirriminal groups as media of change or involve the criminal's group as a target of change. Cressey felt that the theory provided a valuable framework within which to build effective correction techniques.¹

Practical application of the differential association theory to delinquency prevention programs was also the focus of an article by Henry McKay. Three types of intervention used in attempts to control or change the individual's participation in criminal behaviors were discussed: (1) intervention into the life of the person,

¹Donald R. Cressey, "Changing Criminals: The Application of the Theory of Differential Association," American Journal of Sociology, LXI (September, 1955), 116-120.

(2) intervention into the social situation, and (3) unplanned intervention. All of these activities have sought to alter human experiences differentially but have appeared to offer only fair prospects for delinquency control. Any successful delinquency prevention program, McKay asserted, would be based upon increasing the individual's participation with conventional groups and decreasing his participation with criminal groups.¹

Daniel Glaser was concerned with the practical application of the theory in terms of predictive utility. His article compared the effectiveness of the theory with alternative theories for predicting criminal behavior. His basis of comparison was efficiency in codifying observations and utility as a source of valid predictive hypotheses. The differential association theory was chosen as superior on the basis of criminological prediction material. Glaser found that the frequency, duration, priority and intensity variables specified by Sutherland had been effective in criminological prediction in the past. While Sutherland's theory was believed superior to existing theories, Glaser suggested that a differential anticipation theory would meet the standards, employed in his analysis, even more adequately.²

¹Henry McKay, "Differential Association and Crime Prevention: Problems of Utilization," Social Problems, VIII (Summer, 1960), 25-37.

²Daniel Glaser, "Differential Association and Criminological Prediction," Social Problems, VIII (Summer, 1960), 6-14.

Suggestions for Reformulation

The lack of lucidity of Sutherland's theoretical statement and problems of empirical verification have led several writers to suggest reformulation of the theory.

The problems involved in empirically testing the theory was the focus of a 1960 article by Short. He contended that much of the support claimed for differential association theory has been based upon very limited application of a broadly conceived principle. While a fragment of the theory (the specification of the roles of intensity, duration, priority and frequency in associations) has been documented, the theory as a whole has not been tested. The research accomplished in the past has pointed out the need for refocusing efforts toward reformulation of the theory into a series of verifiable hypotheses. The problems of differential association have centered upon its lack of specification in operational definitions and functional relationships. To correct this defect, Short suggested, would involve a transformation of the theory.¹

Daniel Glaser reviewed Sutherland's theory in his article, "Criminal Theories and Behavioral Images," and suggested reconceptualization in terms of role-taking imagery for greater clarity and specificity. Glaser's

¹James F. Short, Jr., "Differential Association As a Hypothesis: Problems of Empirical Testing," Social Problems, VIII (Summer, 1960), 14-25.

theory was that "a person pursues criminal behavior to the extent that he identifies himself with real or imaginary persons from whose perspective his criminal behavior seems acceptable".¹ This reformulation, Glaser felt, would focus attention on interaction in which choice of role models would occur. During any period, prior identifications and present circumstances would dictate the choice of role models.² The present writer believes, however, that this focus upon choice of role models is represented in Sutherland's more general theory as a result of his intimate personal group specification, since members of at least a part of this group are freely chosen as peers and as a group constitute a model for behavior.

Clarence Jeffery discussed the relationship of differential association theory to modern learning theory and suggested that differential reinforcement was the key to an explanation of criminal behavior. The differential reinforcement concept, as Jeffery used it, implied that an individual pursues criminal behavior because he has been rewarded in the past and at the same time he has not experienced negative sanctions for the behavior. The

¹Daniel Glaser, "Criminality Theories and Behavioral Images," American Journal of Sociology, LXI (March, 1956), 440.

²Ibid., p. 444.

individual was believed to be conditioned for criminal behavior.¹

Building upon the effort by Jeffery, Burgess and Akers proposed a reformulation of differential association theory to include greater specification of the learning process involved in the genesis of criminal behavior. Using the principles of modern behavior theory, they examined Sutherland's theory and suggested modifications which, they felt, brought it up to date with advances in learning theory.² As a result of their heavy emphasis on the role of learning processes, this writer believes that the central focus of the theory (differential associations) was displaced. The substitution of reinforcement for associations changes the basic meaning of the theory as stated by Sutherland.

A more promising reformulation of the theory, in the author's opinion, was that proposed by De Fleur and Quinney. The nine basic assertions of Sutherland's theory were analyzed for content and importance to the overall theory and translated in terms of set theory. As a result of their analysis, De Fleur and Quinney were able to

¹Clarence Jeffery, "Criminal Behavior and Learning Theory," Journal of Criminal Law, Criminology, and Police Science, LVI (September, 1965), 294-300.

²Robert L. Burgess and Ronald Akers, "A Differential Association-Reinforcement Theory of Criminal Behavior," Social Problems, XIV (Fall, 1966), 128-147.

demonstrate that of the nine assertions formally stated only five were basic to the theory. The generalizations which remained after reformulation formed a composite set theory model.¹ The essence of the set theory model is stated below:

Overt criminal behavior has as its necessary and sufficient conditions a set of criminal motivations, attitudes, and techniques, the learning of which takes place when there is exposure to criminal norms in excess of exposure to corresponding anticriminal norms during symbolic interaction in primary groups.²

The assertions not included in the composite set theory were not summarily dismissed by De Fleur and Quinney. It was shown that Sutherland's first statement, "criminal behavior is learned" simply defined criminal behavior as a special case of learned behavior. While the final three assertions in Sutherland's theory³ were not considered to be central to the theory, De Fleur and Quinney stated that "they offer important qualifications and suggest links with more general behavioral concepts."⁴

Donald Cressey praised the De Fleur and Quinney article as revealing earlier unexpressed relationships

¹Melvin L. De Fleur and Richard Quinney, "A Reformulation of Sutherland's Differential Association Theory and a Strategy for Empirical Verification," Journal of Research in Crime and Delinquency, III, 1 (January, 1966), 1-22.

²Ibid., p. 7.

³See pages 17-18 of this thesis for a statement of assertions.

⁴De Fleur and Quinney, op. cit., p. 8.

and clarifying the theory. "Their English translation of set theory language," asserted Cressey, "states the theory more beautifully and more efficiently than it has ever been stated before."¹ This approval is particularly relevant since Cressey had earlier worked closely with Sutherland on aspects of differential association theory.

Summary

A great deal of enthusiasm has been generated by the presentation of the revised formulation of Sutherland's theory of differential association. While the theory has often been criticized, it has found theoretical application to many types of criminal behavior and practical application to problems of prediction and control. One criticism of the theory is that the theory, as posited by Sutherland, is untestable. This problem has resulted in the reformulation of the theory by several writers.

A CAUSAL MODEL OF DIFFERENTIAL ASSOCIATION THEORY

Several writers, as noted earlier in this chapter, have suggested reformulation of Sutherland's theory to make it amenable to empirical testing. While several

¹Donald R. Cressey, "The Language of Set Theory and Differential Association," Journal of Research in Crime and Delinquency, III, 1 (January, 1966), 23.

reformulations and strategies for testing the theory have been found in the literature, the variables have not been defined and operationalized for empirical testing utilizing causal modeling techniques. Short pointed out the need for transformation of the theory for empirical verification in the following statement:

The content of a theory is given by the definitions--not the naming--of its variables; and by specification of the functional relationships among them. Changing either of these changes the theory; or, if the theory is equivocal or vague in either respect to begin with, it amounts to creating the theory. In "operationalizing" a theory to make it "researchable," precisely what one must do is define the variables and their functional relationships. Research on a theory such as differential association, the variables and functional relationship of which, though they are not without meaning, are so imprecisely defined, is necessarily a theoretically creative task.¹

Transformation of the theory, by definition of the concepts and setting them in a causal model framework for empirical testing, is the objective of this section of the thesis. The causal model will be developed by a careful examination of differential association theory as posited by Sutherland and clarified by De Fleur and Quinney to determine the concepts and relationships necessary to an empirical test of the theory.

Identification of Concepts

An examination of Sutherland's theory and its

¹James F. Short, Jr., "Differential Association As a Hypothesis: Problems of Empirical Testing," p. 24.

clarification by De Fleur and Quinney reveals that several concepts are important to an empirical test of the theory. The first concept is the major dependent variable, individual delinquency. Other relevant concepts are those which are believed to be the prior conditions necessary for delinquent behavior. De Fleur and Quinney identified six such prior conditions:

1. Interaction with others
2. A context of primary groups
3. Acquisition of techniques and dispositions (or definitions) toward violation of law
4. Prevalence of definitions of the legal code as favorable or unfavorable to violation of law
5. A given selective pattern of exposure to definitions
6. The association of criminal learning with differential exposure.¹

An examination of these prior conditions necessary for delinquent behavior, posited by De Fleur and Quinney, suggests that the process of becoming delinquent involves two stages.² In the first stage, the individual acquires dispositions, in the form of definitions, toward violation of law when he is exposed to an excess of definitions favorable to violation of law over definitions unfavorable to violation of law through symbolic interaction with

¹De Fleur and Quinney, op. cit., p. 7.

²Ibid.

members of primary groups. Although the theory specifies the learning of techniques, it does not propose through what mechanism the techniques are learned and therefore is not specifically dealt with in the thesis. It is assumed that techniques are learned through socialization in a manner similar to the learning of other skills and behaviors. In the second stage of the process, individual definitions toward law violation, learned from the primary groups, result in delinquent behavior. This two stage process suggested by De Fleur and Quinney is diagrammed in Figure 1.

The differential association process interpreted by De Fleur and Quinney specifies the internalization of definitions learned in the primary groups as a condition necessary for commission of delinquent acts by the individual. In order to make this interpretation, a revision of Sutherland's sixth proposition, "a person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law,"¹ was necessary.

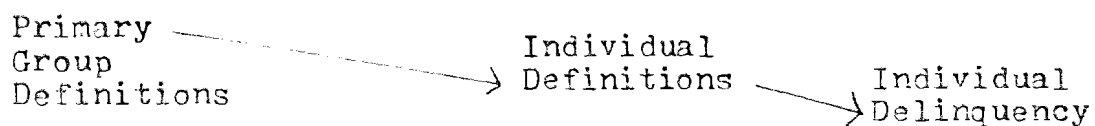


Figure 1

A Two Stage Model of the Differential Association
Process Driven From the 1966 De Fleur
and Quinney Reformulation

¹See page 17.

It is possible that Sutherland did not specify internalization of definitions, in the opinion of the present writer, because while he felt that internalization of norms may have been sufficient for the genesis of criminal behavior, it was not necessary. The individual may act upon group definitions in compliance with group pressures whether there has been internalization of the definitions or not. This interpretation of Sutherland's theory indicates that the genesis of delinquent behavior may result from either a one stage or two stage process as diagrammed in Figure 2.

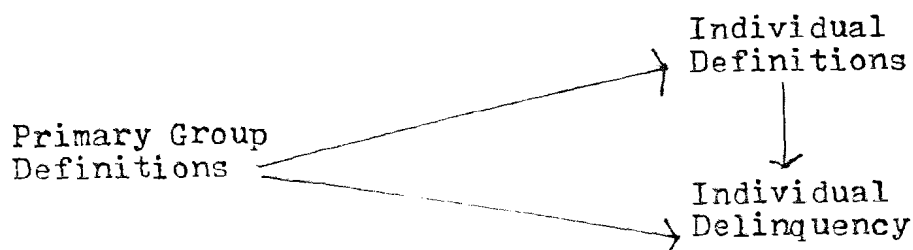


Figure 2

A General Model of Differential Association
Based Upon the Writer's Interpretation,
1972

The general concepts identified by a diagrammatical representation of the theory of differential association were primary group definitions, individual definitions and individual delinquency. These concepts will be further specified and defined and their relationships expanded to yield a more specific and complex causal model amenable to empirical testing.

Definition of Concepts and Causal Relationships

Most research on differential association theory, to this date, has focused upon correlation of delinquent patterns of behavior exhibited by members of the peer group with delinquent patterns of behavior reported by the respondent or shown in official records for verification of the theory.¹ Selection of peers for study has generally been based upon the frequency, duration, intensity or priority characteristics of their associations with the respondent. Although knowledge of peer group acts provides one avenue through which the individual may assess primary group definitions, other means are also available. Primary group definitions may also be directly or indirectly communicated to the individual through symbolic interaction with members of the primary group. The peer group is a primary group, but at least one other primary group can be identified. The individual's primary groups are any membership groups which are "characterized by affectional motives, face-to-face or intimate contact, and small size."² Thomas points out that "the family is the smallest social unit and the primary defining agency."³ Primary group definitions, from the point of view of the individual,

¹See pages 22-24 of the thesis.

²Marcello Truzzi (ed), Sociology: The Classic Statements (New York: Random House, 1971), p. 278.

³*Ibid.*, p. 277.

has as its complement parental definitions, peer definitions and peer acts. These concepts and others necessary to the theory of differential association are defined below.

Parental definitions. Parental definitions refers to the perceived attitudes of members of the primary group in the parental generation toward law violations. Perceived attitudes are preferred over "actual" attitudes since they define the situation upon which others act. As Thomas points out "if men define situations as real they are real in their consequences."¹ Since the parental group holds relationships of high priority and duration (specifications proposed by Sutherland) with the individual, it is felt that the definitions of this primary group toward violation of law are essential to a test of differential association theory.

Peer definitions. The concept peer definitions refers to the perceived attitudes of members of the peer group toward law violations. Perceived attitudes are preferred in the context of the definition of the situation. Since members of the peer group hold relationships characterized by duration, intensity and frequency (specifications proposed by Sutherland), it is believed that the definitions toward violation of law of this primary group are essential to a test of the theory.

¹Nicholas S. Timasheff, Social Theory: Its Nature and Growth (3rd ed.; New York: Random House, 1957), p. 153.

The general model of differential association theory diagrammed in Figure 2 (page 35) indicates that primary group definitions are causally related to the individual's definitions. As an individual, each member of the peer group learns definitions favorable or unfavorable to violation of law from members of his primary groups including members of the parental generation. If parental definitions are favorable to violation of law, the peer's definitions are more likely to be favorable. This relationship is diagrammed in Figure 3.

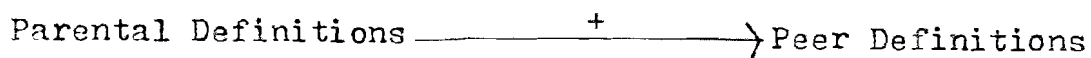


Figure 3

Causal Relationship Between Parental Definitions
and Peer Definitions Based Upon
the General Model, 1972

Peer acts. This concept refers to the commission of delinquent acts by members of the peer group. The delinquent acts of members of the peer group may be perceived as overt, non-verbal indications of the peers' definitions toward violation of law learned through "the communication of gestures" (mentioned by Sutherland)¹ and therefore necessary to a test of the theory.

While the primary group definitions complement appears in Figure 2 (page 35) as a single unit, its

¹See page 16 of thesis.

component parts are interrelated. The process by which the individual comes to participate in delinquent activities may be applied to members of the peer group. Primary group definitions (for the peer) are represented by parental definitions in the figure and self definitions (for the peer) are represented by peer definitions. Both peer definitions and parental definitions are causally related to peer acts. These relationships may be stated as follows: (1) the more unfavorable the parental definitions toward violation of law, the less likely the commission of peer acts, and (2) the more unfavorable the peer definitions, the less likely the commission of peer acts. These relationships are diagrammed in Figure 4.



Figure 4

Variables Hypothesized to Causally Affect Peer Acts
Based Upon the General Model, 1972

Individual Definitions. Individual definitions refers to the individual's attitude toward violation of law. It is suggested, since the commission of delinquent acts is thought to be a result of rational decision-making, the individual's definitions may influence his behavior. If the individual's definitions play a role in the decision to commit delinquent or conforming acts, they are important to a test of the theory.

The general model of the theory diagrammed in Figure 2 (page 35) indicates that primary group definitions are causally related to individual definitions. From this general relationship, three more specific relationships can be derived by an examination of the components of the primary group definitions complement: (1) the more unfavorable the parental definitions toward violation of law, the more unfavorable the individual's definitions, (2) the more unfavorable the peer definitions, the more unfavorable the individual's definitions, and (3) the greater the commission of delinquent peer acts, the less unfavorable the individual's definitions toward violations. These relationships are diagrammed in Figure 5.

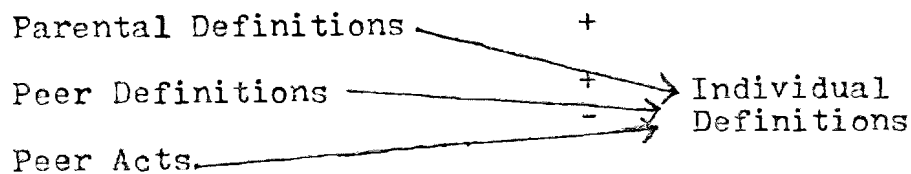


Figure 5

Variables Hypothesized to Causally Affect Individual Definitions Based Upon the General Model, 1972

Individual delinquency. This concept refers to the individual's delinquent activities. Individual delinquency is the focus of the differential association theory as reformulated in this thesis. The general model in Figure 2 (page 35) indicates that the primary group definitions complement and individual definitions are causally related to individual delinquency. These

relationships may be stated as follows: (1) the less unfavorable the parental definitions toward violation of law, the greater the individual delinquency, (2) the less unfavorable the peer definitions, the greater the individual delinquency, (3) the greater the peer acts, the greater the individual delinquency, and (4) the less unfavorable the individual definitions toward violation of law, the greater the individual delinquency. These relationships are diagrammed in Figure 6.

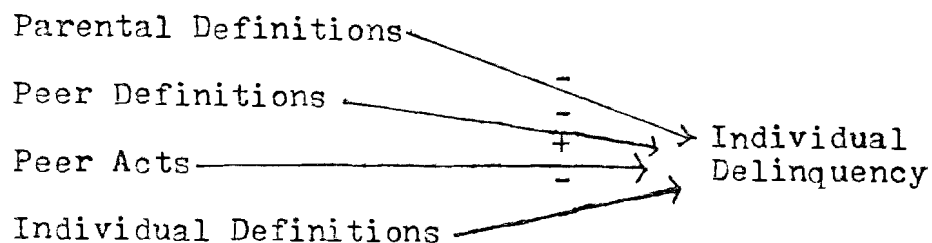


Figure 6

Variables Hypothesized to Causally Affect Individual Delinquency Based Upon the General Model, 1972

The Propositions

During the discussion of the concepts and their relationships in the preceding section, a number of hypotheses were suggested. Although these hypotheses could be explicated in verbal form, yielding ten ordinary two-variable hypotheses, it should be pointed out that these relationships exist within a larger causal network and must be considered within that framework. An examination and evaluation of a specific two-variable relationship, taken out of context, can be highly misleading. Therefore, no attempt will be made to verbally list them.

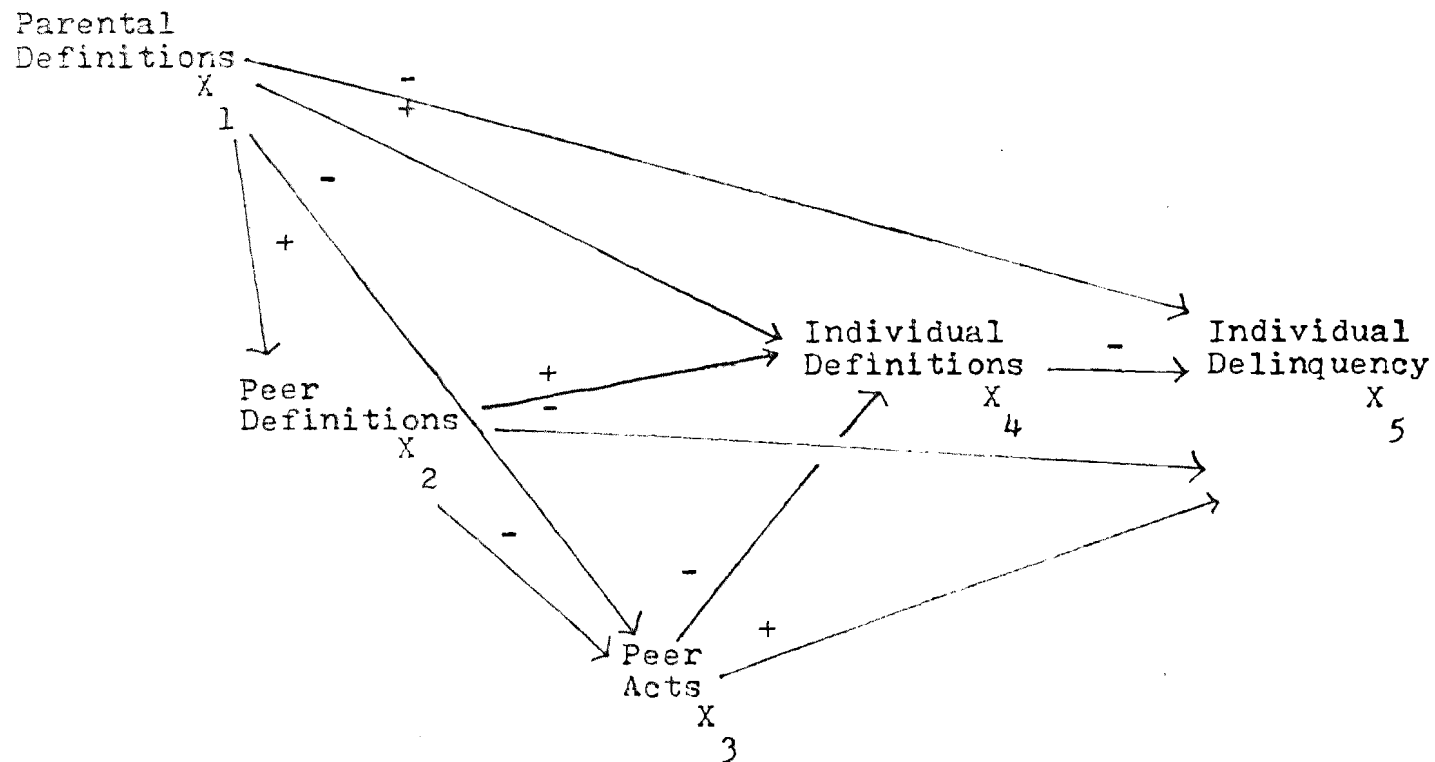


Figure 7

Causal Model of Differential Association Developed
From the 1972 General Model to Explain the
Genesis of Individual Delinquency

Figures 3 through 6 illustrate the development of hypotheses within the model. Figure 7 represents the total model with all relationships specified.

In later chapters of the thesis, the concepts which appear in the causal model shown in Figure 7 will be operationalized and a research will be implemented to test the specified causal relationships.

Chapter 3

RESEARCH METHODS

Sutherland has suggested that the theory of differential association is capable of explaining all criminal behavior. If this assumption is valid, it should be possible to select any sample of individuals from a population which exhibits some form or degree of criminal behavior and use this sample to test a causal model derived from the basic theory. Such a test of the causal model would either lend support to the theory of differential association or suggest limitations as to its generality, indicating a need for modification of theoretical propositions. The investigation reported here is proposed as a limited test of a causal model of differential association theory, utilizing a modified random sample taken from a population of university sophomores.

In this chapter, a research design to study the model presented in Chapter 2 will be elaborated. A discussion of the sample will be followed by a presentation of how the theoretical concepts were operationalized. Further, a rationale for use of path analysis techniques to test the model will be presented along with the procedures and assumptions required for its use.

THE PRETEST

After the initial population to be sampled for this study had been defined, two additional populations were identified and utilized for the purpose of pretesting the research instrument.¹ The first pretest population consisted of 38 college freshmen taking an introductory sociology course at a large midwestern state-supported university. The second pretest population consisted of 40 college juniors taking an upper division sociology course at a small private university in the midwest.

The pretest instrument was given to both populations in a classroom setting. The students were given an opportunity to specify ambiguities seen in the questionnaire. As a result of this feedback operation, the wording of certain questions was changed for clarity and a new category of questions was added separating the respondent's evaluation of the seriousness of a delinquent act from those of his friends. Analysis of the pretest response patterns indicated that a modified test instrument might be more suitable for the purpose of testing a causal model of differential association among a college student population. The modified test instrument is presented in its entirety in Appendix A.

¹Roy Dean Wright and Brenda S. Griffin, "A Technique For Testing Dimensions of Differential Association" (paper read at the Southern Sociological Meetings, April, 1972, New Orleans, Louisiana).

THE RESEARCH SAMPLE

The sample for the investigation reported here consisted of college sophomores randomly selected from the entire population ($n=1,683$) of sophomores listed in the student directory as enrolled in a small, private university in the midwest. A table of random numbers was used to obtain a 14 percent sample of 240 sophomores from the alphabetical listing. Of these 240 students, 21 were eliminated from the sample as withdrawn from school, address unknown or other similar designations. This elimination modified the sample size from 240 to 219 since those individuals so eliminated, theoretically, did not have a chance to appear in a sample which was limited to sophomores enrolled at the university at the time that the sample was drawn. The modified sample was a 13 percent sample of the population.

Questionnaires were mailed to individuals in the sample with return envelopes and cover letters to explain the purpose of the study and to assure anonymity. The return envelopes were numbered for identification and those students not responding to the January 17, 1972 mailing were sent a follow-up letter and questionnaire on February 7, 1972. Of the 219 students in the modified sample, 169 returned questionnaires for a response rate of 77 percent.

Several consistency checks were employed, and those questionnaires inconsistently or haphazardly completed and

those which revealed commission of all delinquencies in the questionnaire (indicating refusal to cooperate) were eliminated as were those returned incomplete. Approximately 13 percent or 22 of the returned questionnaires were eliminated. The remaining 147 questionnaires, or 67 percent of the modified sample, were utilized to obtain data for this study.

An analysis of these data indicated that the respondents were primarily white, unmarried university sophomores on the average 19 years of age. The large majority of the respondents were from middle and upper class backgrounds. Table 1 illustrates the distribution of the respondents according to social class as measured by Hollingshead's Two Factor Index.¹

MEASUREMENT PROCEDURES

The test instrument was a mail-out questionnaire administered to the respondents under conditions which assured the anonymity of the respondents. A copy of the questionnaire is presented in Appendix A. The body of the data gathering instrument had five major divisions. Parts I, II and III contained questions concerning the demographic characteristics of the respondent and his parents. Part IV contained questions concerning the

¹August B. Hollingshead, "Two Factor Index of Social Position" (New Haven: privately mimeographed, 1957).

Table 1
Social Class Distribution of University Sophomores
Responding to the Test Instrument
in January and February, 1972

Social Class Position	Absolute Frequency	Relative Frequency (percent)	Cumulative Adjusted Frequency (percent)
Upper	23	15.6	15.6
Upper Middle	47	32.0	47.6
Lower Middle	39	26.5	74.1
Upper Lower	28	19.0	93.1
Lower Lower	9	6.1	99.2
Missing Data	1	0.7	100.0
TOTAL	147	99.9	100.0

commission of delinquent acts. Part V contained questions involving the perceived seriousness of delinquent acts.

The items which appeared in Part IV and V of the questionnaire were used to construct five scales with which to measure the variables presented in the model. The specific acts selected were included in the questionnaire as representative of acts specified in earlier research efforts to test the theory of differential association as it applies to delinquent behavior. While twenty-seven items were built into the questionnaire for each of the variables, only fourteen were used for each variable in the analysis. Items were utilized for scale construction after an inspection of means and standard deviations for each item. An attempt was made to assure that items with variance were chosen rather than items where all respondents reported non-commission or all reported commission of acts. The items which remained represented a wide range of delinquent activities.

Scoring Techniques

The scoring procedures utilized for the present research were of two types. The first type was a Likert-type scoring method discussed by Selltitz and others.¹ Utilizing this scoring technique to measure attitudes

¹Claire Selltitz and others, Research Methods in Social Relations (New York: Holt, Rinehart and Winston, 1959), pp. 366-367.

(or definitions), the response framework required two decisions on the part of the respondent. These were the assessment as to whether the act is or is not serious and the degree to which the assessment is held. The following response framework was used for this first type of scale:

	Not serious
	Not very serious
	Somewhat serious
	Serious
	Very serious

The second type of scoring procedure was based on the frequency of commission of specified delinquent acts. Utilizing a numeric scoring technique, the response framework required only one decision on the part of the respondent. This decision was an evaluation of the frequency of commission. The following response framework was used for this second type of scale:

	Not serious
	Not very serious
	Somewhat serious
	Serious
	Very serious

Scale Construction

Scaling of variables requires that the scores for the items be homogeneous and normally distributed. This is the additivity requirement. Normalization may be accomplished by transforming the raw scores to Z scores. The distribution of responses, means and standard deviations for each item used in each scale were inspected to determine whether the variances were homogeneous and items normally distributed. The magnitude of the standard deviations was near 1.2 for most items, and the items appeared to be normally distributed. Therefore no transformation or normalization (z score transformation) was attempted.

No detailed scaling analysis was attempted in this thesis. However, one path analysis assumption requires that little or no measurement error exists. As a result of making this assumption, it was necessary to attempt at least a limited assessment of the scalability of the items utilized in measurement. Empirical evidence was utilized to evaluate scalability. Linearity, according to Warren and others, is necessary for scalability and is evaluated by three criteria.¹ The first criterion is that the item total correlation must be greater than the minimum acceptable

¹Richard D. Warren, Gerald E. Klonglan and Medhat M. Sabri, "The Certainty Method: Its Application and Usefulness in Developing Empirical Measures in the Social Sciences," Rural Sociology Report No. 82 (Ames, Iowa: Iowa State University, 1969), p. 14.

item total correlation coefficient (r_{it}). The coefficient (r_{it}) is a quasi-significance test for linearity, since the coefficient (r_{it}), according to Mulford and others, "defines the amount of independent variance of the total score contributed by each item if there were no experimental relationships..."¹ The coefficient (r_{it}) is computed by the following formula:

$$r_{it} = \frac{1}{\sqrt{n}}$$

where n is the number of items in the prospective scale.

The second criterion for linearity is evaluated through the use of the average intercorrelation coefficient (\bar{r}_{it}) which was computed by summing all the inter-item correlations and dividing by the total number of correlations. The coefficient (\bar{r}_{it}) should be positive and relatively high in magnitude to insure consistency of correlations.

The third criterion for linearity is evaluated by examination of the reliability coefficient (r_{tt}) defined by Richardson as:

$$r_{tt} = \frac{n (\bar{r})}{1 + (n-1)(\bar{r})}$$

where n is the number of items in the scale and \bar{r} is the average intercorrelation.² Reliability should be viewed as

¹Charles L. Mulford, Gerald E. Klonglan and Richard Warren, "Socialization, Communication, and Role Performance," Sociological Quarterly, XIII (Winter, 1972):76.

²Warren, op. cit., p. 14.

a comparison of true scores and observed scores, and if reliability is high then measurement error is small. The reliability coefficient (r_{tt}) was computed for each scale and reported in the discussion of each scale.

Correction for attenuation or correction for measurement error was not attempted in this thesis. Reliability coefficients (r_{tt}) were computed for each of the variables (see Table 2). The reliability coefficients were quite high and indicated very little measurement error. Therefore, correction for attenuation did not appear to be needed. The correction would have made only extremely small differences in the magnitudes of the correlation coefficients. It should be pointed out that the correction for attenuation equation utilizes correlations and reliability estimates for correction.¹ If reliability is high, then little change in correlations or path coefficients is expected with correction. The reader is referred to Featherman for a recent article utilizing these techniques.²

¹The correction for attenuation is accomplished with the following formula:

$$r^*_{xy} = \frac{r_{xy}}{r_{xx} r_{yy}}$$

where r^*_{xy} is the correlation coefficient after correction for attenuation, r_{xy} is the uncorrected correlation and r_{xx} , r_{yy} are the reliability estimates.

²David L. Featherman, "Achievement Orientations and Socioeconomic Career Attainments," American Sociological Review, XXXVII (April, 1972), 131-143.

Table 2

Minimum Acceptable Intercorrelation, Reliability Coefficient
and Average Intercorrelation for Each Variable Used
in a Study of Delinquency Conducted on a
Sample of University Sophomores in 1972

Variable	Minimum Acceptable Intercorrelation (r_{it})	Reliability Coefficient (r_{tt})	Average Intercorrelation Coefficient (\bar{r})
Parental Definitions (X_1)	.27	.97	.28
Peer Definitions (X_2)	.27	.98	.33
Peer Acts (X_3)	.58	.88	.70
Individual Definitions (X_4)	.27	.98	.37
Individual Delinquency (X_5)	.27	.98	.31

Operationalization of Variables

Each variable in the model was operationally defined and measured using scales constructed for the present research. Each of these variables is presented with its operational definition and evidence for its scalability.

Parental definitions, X_1 . Parental definitions refers to the individual's assessment of the parental generation's evaluation of the seriousness of specified delinquent acts. The variable was measured by fourteen items utilizing a five-point scoring method for each. These items and the coding instructions are listed in Appendix B. The score developed for parental definitions is a scale. The minimum acceptable intercorrelation (r_{it}) for this variable is .27, and none of the items was omitted. The average intercorrelation coefficient (\bar{r}_{it}) is .28. The reliability coefficient (r_{tt}) is .97. A summary statement of these scale linearity checks is presented in Table 2.

Peer definitions, X_2 . Peer definitions refers to the individual's assessment of the peer group's evaluation of the seriousness of specified delinquent acts. The variable was measured by fourteen items utilizing a five-point scoring method. These items and the coding instructions are presented in Appendix B. The score developed for peer definitions is a scale. The minimum acceptable intercorrelation (r_{it}) for peer definitions is .27, and none of these items was omitted. The average intercorrelation

coefficient (\bar{r}_{it}) is .33. The reliability coefficient (r_{tt}) is .98. A summary statement of these linearity checks is presented in Table 2.

Peer acts, X_3 . Peer acts refers to the frequency with which members of the peer group were perceived to have committed specified delinquent acts. The variable was measured by a composite score reflecting acts committed by longest friends, best friend and most frequent companion. Each of these three scores was measured by fourteen items utilizing a five-point scoring method. These items and the coding instructions are presented in Appendix B. The score developed for peer acts is a scale. The minimum acceptable intercorrelation (r_{it}) is .58, and none of the items was omitted. The average intercorrelation coefficient (\bar{r}_{it}) is .70. The reliability coefficient (r_{tt}) is .88. A summary statement of these scale linearity checks is presented in Table 2.

Individual definitions, X_4 . Individual definitions refers to the respondent's assessment of the seriousness of specified delinquent acts. The variable is measured by fourteen items utilizing a five-point scoring method. The items and the coding instructions are presented in Appendix B. The score developed for individual definitions is a scale. The minimum acceptable intercorrelation (r_{it}) is .27, and none of the items was omitted. The average intercorrelation coefficient (\bar{r}_{it}) is .37. The reliability coefficient (r_{tt})

is .98. A summary statement of these scale linearity checks is presented in Table 2.

Individual delinquency, X_5 . Individual delinquency refers to the frequency with which the respondent has committed specified delinquent acts. This variable is measured by fourteen items utilizing a five-point scoring method. These items and their coding instructions are presented in Appendix B. The score developed for individual delinquency is a scale. The minimum acceptable inter-correlation (r_{it}) is .27, and none of the items was omitted. The average intercorrelation coefficient (\bar{r}_{it}) is .31. The reliability coefficient (r_{tt}) is .98. A summary statement of these scale linearity checks is presented in Table 2.

STATISTICAL METHODOLOGY

In a causal model theoretical relationships are specified between all dependent and independent variables recognized in the system. According to Blalock, the use of a causal model for recasting verbal theories for empirical testing accomplishes three objectives: (1) it provides a check against the possibility of omitting major variables, (2) it provides a rationale for delimiting one's research on theoretical grounds in that complex theoretical networks may be specified and tested, and (3) it points out peculiarities in relationships among intervening variables which are not brought out using other

techniques.¹ Path analysis is the technique used in this thesis to evaluate the causal model. Other techniques which might be used to evaluate causal models include multiple regression techniques and factor analysis. Both of these techniques were considered for use in the current investigation, but were rejected as lacking some of the advantages which are offered by path analysis techniques.

Advantages of Path Analysis

According to Mulford and others, the causal model has several advantages not offered by multiple regression procedures. First, variables may exist in complex relationships with each other and path analysis attempts to describe and measure these relationships. Second, path analysis will examine both direct and indirect relationships among variables. Third, path analysis can examine the effect of independent variables upon each other. With these advantages, path analysis can serve as a useful technique by providing more information about the nature of the relationships between variables when compared to multiple regression techniques.²

¹Hubert Blalock, Jr., Theory Construction: From Verbal to Mathematical Formulations (Englewood Cliffs, New Jersey: Prentice Hall, 1969), pp. 39-40.

²Charles L. Mulford and others. "Causal Model Analysis of Local Civil Defense Coordinator's Building Roles in Horizontal-Vertical Community Systems," Sociology Report No. 93 (Ames, Iowa: Iowa State University, 1971), pp. 8-9.

When factor analysis was considered, one disadvantage was seen almost immediately. The technique does not allow the researcher to establish temporal priority of the variables in the model, a requirement essential to the investigation of Sutherland's theory recast as a causal model of delinquent behavior. Since this requirement is met by path analysis, it is the choice for use in this investigation. Land suggests this criterion for choosing between path analysis and factor analysis as a mathematical model. He states, "the choice of either path analysis or factor analysis as a mathematical model would be made on the basis of degree of structural isomorphism with substantive theory under investigation."¹

Since path analysis was the chosen technique for evaluating the causal model, a few background comments should be made before it is applied. Path analysis was first introduced by geneticist Sewell Wright in 1923. In his article, "The Theory of Path Coefficients," Wright initiated most of the conventions used in path analysis diagrams.² These conventions include unidirectional arrows to indicate causal relationships, two-headed curvilinear arrows to represent non-causal correlations, and path or correlation coefficients represented by the

¹Edgar F. Borgatta and George W. Bohrnstedt, Sociological Methodology: 1969 (San Francisco: Jossey-Bass, 1969), p. 119.

²Sewell Wright, "The Theory of Path Coefficients," Genetics, VIII (May, 1923), 342.

quantities beside the arrows. Since the variables in the path model exist within a complex network, the conventional distinction between dependent and independent variables may be at times misleading. In using path analysis, a distinction is made between endogeneous and exogeneous variables. Exogeneous variables are those which are determined by variables outside the model, while endogeneous variables are those which are determined by variables within the model. While econometricians have influenced sociology in recent years with their work on causal models, the basic work of bringing such techniques into sociology was not begun until 1964 with the work of Hubert Blalock, Jr.¹

General Assumptions

While the advantages of path analysis for testing a causal model appear to make this technique preferable to others, the assumptions required by path analysis limit the types of data which can be analyzed by this technique. Several assumptions are made with the application of path analysis techniques. The three major assumptions are a linear, additive relationship among variables, use of interval data, and adherence to the general assumptions of causation.² These assumptions may met or weakened by a careful examination of the theory under

¹Otis Dudley Duncan, "Path Analysis: Sociological Examples," American Journal of Sociology, LXXII (July, 1966), 1.

²Borgatta, op. cit., pp. 32-34.

analysis and a study of past research in the area.

The assumption of linear, additive relationships was met through scale construction techniques discussed earlier in this chapter. Additivity requires that the items be homogeneous and normally distributed. Linearity requires that a change in one variable occurs as a function of change in another variable.¹ Sutherland's theory suggests relationships of this type. While his theory has not been previously recast in terms of a causal model, previous research efforts, as noted in Chapter 2, suggest these relationships.

The assumption of interval data is a difficult one to meet. Although the scales used in the research instrument were constructed with this goal in mind, these measures, like many typical in sociological research, possess properties somewhere between the ordinal and interval score levels of measurement. While the items used for constructing scales of delinquent activity were interval in the numeric formulation, the verbal responses for definitions can only approximate the distance function that produces "true" values. Labovitz has argued for the use of interally based statistics on data that is "partially interval." He maintains that:

by treating almost, but not exactly interally measured variables as ordinal (although they lie somewhere in between) we are losing the knowledge of at least an approximation to

¹Borgatta, op. cit., pp. 32-34.

equal distances between adjacent scores. Some idea of the difference between two scores is much more useful than just knowledge that one is greater than the other.¹

Labovitz has demonstrated that the assignment of almost any linear scoring system to ordinal data results in a small amount of error whatever the "true" scoring system may be.² Gross errors will not be introduced into path models by the use of these measures.³ Labovitz's variable requirements were met by the scoring techniques utilized in this research.

The path analysis assumption of asymmetric causation can be met by an examination of three primary sources. These are time ordering, existing empirical studies or the theoretical assumptions of the substantive area. Sutherland's theory and underlying assumptions suggest causation by time ordering the variables. Previous studies of his theory, while not being cast in causal model frameworks, have suggested that this time ordering does in fact exist.

Steps in Path Analysis

Griffin suggests that the application of path analysis techniques generally follows the steps which are listed below:

¹S. Labovitz, "Some Observations on Measurement and Statistics," Social Forces, XLVI (December, 1967), 34.

²Ibid.

³Borgatta, op. cit., p. 34.

1. A causal model diagram is drawn.
2. A set of recursive regression equations is obtained to represent the causal model diagram.
3. Partial F values for each path coefficient are obtained for each equation.
4. All variables which do not have significant partial F values are dropped.
5. Steps 2 through 4 are repeated until all the partial F values are significant.
6. The path coefficients are standardized to allow direct comparison of coefficients between equations.
7. Path values are noted on the path arrows in the causal model.
8. The amount of unexplained variance is calculated and entered into the causal diagram as the effects of variables not included in the original causal model.¹

The first step was completed in Chapter 2, step 2 is completed in Chapter 3, and the remaining steps are completed in Chapter 4. The partial F value used to determine whether the regression coefficient will remain in the equation corresponds to a .05 probability or less that a coefficient might occur by chance. The more

¹Charles T. Griffin, "Causal Model Analysis of Role Performance of Coordinators in the Operating System Following disaster," Unpublished Ph.D. dissertation (Ames, Iowa: Iowa State University, 1972), p. 82.

conservative .01 significance level was not utilized because such a level could lead to the premature rejection of significant paths.

The theoretical model presented on page 42 is of central interest. The set of recursive equations for this model are as follows:

$$\text{eq. 1 } X_2 = b_{21}X_1 + e_2$$

$$\text{eq. 2 } X_3 = b_{31}X_1 + b_{32}X_2 + e_3$$

$$\text{eq. 3 } X_4 = b_{41}X_1 + b_{42}X_2 + b_{43}X_3 + e_4$$

$$\text{eq. 4 } X_5 = b_{51}X_1 + b_{52}X_2 + b_{53}X_3 + b_{54}X_4 + e_5$$

Statistical Assumptions

In using the statistical procedures associated with path analysis, several statistical assumptions are made. Griffin has listed seven statistical assumptions as being applicable to path analysis.¹ These assumptions and steps taken to meet the assumptions are listed below:

1. The variables are additive. The determination of whether this assumption is met with the data has been attempted in the first portion of Chapter 3. It was determined that the variables appeared to be additive.

2. The observations are random and independent. The sample was selected randomly as was shown in Chapter 3. There was no reason to believe that the observations were not independent.

¹Griffin, op. cit., pp. 84-85.

3. The variables are normally distributed. Each item of each scale constructed for the present study was inspected. The distributions found led the researcher to conclude that the variables were characterized by a reasonably normal distribution.

4. The variables are measured with little or no error. Each of the scales had high reliability coefficients as shown in Table 2 (page 54), indicating little measurement error.

5. The relationships among the variables are linear. Examination of past research into the theory of differential association has led to this conclusion.

6. All relevant variables have been included in the model and all errors calculated. All variables specified by the theory have been included in the analysis. Residual paths have been included to provide an estimate of the effect of any variables not specified by the theory.

7. Hypothesized causal relationships are asymmetrical. Only asymmetrical causal relationships are specified by the theory and regression equations.

Chapter 4

FINDINGS

The use of a causal modeling technique in the present study required a verbal explanation of relationships, a diagram of the hypothesized verbal relationships, and a presentation of recursive equations to represent the causal diagram. These prerequisites were met in Chapters 2 and 3. The purpose of this chapter is to focus upon the entire network of relationships implied in Sutherland's theory and represented by the causal model. The specific objectives of this chapter are to determine whether or not path relationships exist as hypothesized and, if they do exist, to what extent as measured by tentative estimates of magnitudes of coefficients.

In order to meet the objectives of this chapter, path analysis techniques are used to consider the effects of the system of interrelated variables. All path analyses in Chapter 4 are based upon the causal model illustrated in Chapter 2 (page 42) and represented by the recursive equations in Chapter 3 (page 63). The results of the first step in the analysis will be presented in terms of standardized regression coefficients or path values and partial F values. The path value is an indication of the strength of the relationship between variables; the greater the magnitude of the path value, the stronger the relationship.

The standardized regression coefficient also indicates the direction of relationship and allows direct comparison with other paths in the model. The standardized regression coefficients are calculated through the utilization of the machine formula which follows:

$$b_{xy} = \frac{\sum x^2}{\sum y^2}$$

The partial F value is a significance test. This test indicates whether the regression coefficient contributes significantly to the prediction of the criterion variable.¹ The F value may be calculated by the formula which follows:

$$F = \frac{\text{MS for regression}}{\text{MS for error}}$$

where MS is used for mean square. The objective in using these procedures is one of testing the causal model derived from Sutherland's theory for "goodness of fit" with the data collected from a sample of university sophomores.

The initial and final steps of the analysis will be presented. The initial step involves tentative determination of significant paths. The final step is presented to show the path diagram with all path coefficients significant at the .05 level. The intervening steps will not be presented or discussed.

¹Helen M. Walker and Joseph Lev, Elementary Statistical Methods (2nd ed.; New York: Holt, Rinehart and Winston, 1969), p. 313.

DETERMINATION OF SIGNIFICANT PATHS

A set of recursive equations to represent the path diagram was presented in Chapter 3. Regression coefficients were calculated for the four regression equations that represent the model. These regression coefficients were converted to standardized regression coefficients and added to the initial model, yielding the paths shown in Figure 8.

In order to determine whether the variables utilized in the recursive equations should remain in the equation, an F test for statistical significance was performed. For each regression coefficient, the null hypothesis $\beta=0$ was tested. This procedure provided the test of no linear relationship and the .05 level of significance was used. While a more rigorous level of significance could have been utilized, the probability of a Type II error (acceptance of the null hypothesis when it is false) would have increased. The exploratory nature of the research reported here makes the avoidance of Type II errors desirable.¹ The .05 level of significance means that the probability of chance error is only five percent.

All coefficients for the initial causal model presented in Chapter 2 are shown in Table 3 and in the path diagram in Figure 8. The values represented in Table 3 are

¹Claire Selltitz and others, Research Methods in Social Relations (rev.; New York: Holt, Rinehart and Winston, 1959), pp. 417-419.

Table 3

Initial Determination of Significant Paths in the
Causal Model Based Upon Data Collected From
a Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	"F" Value	Partial Regression Coefficient	Standardized Regression Coefficient (path coefficient)	R ²
X ₂ PEER DEFINITIONS				.31
X ₁ parental definitions	62.61 ^b	.77	.56	
X ₃ PEER ACTS				.36
X ₁ parental definitions	.48	-.09	-.06	
X ₂ peer definitions	45.77 ^b	-.63	-.56	
X ₄ INDIVIDUAL DEFINITIONS				.82
X ₁ parental definitions	3.18 ^b	.11	.08	
X ₂ peer definitions	272.91 ^b	.90	.83	
X ₃ peer acts	.91	-.04	-.04	

^aEach variable is part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variable is identified by upper case type and the independent variable by lower case type.

^b"F" values significant at the .05 level.

Table 3 (continued)

Initial Determination of Significant Paths in the
Causal Model Based Upon Data Collected From
a Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	"F" Value	Partial Regression Coefficient	Standardized Regression Coefficient (path coefficient)	R ²
X ₅ INDIVIDUAL DELINQUENCY				.67
X ₁ parental definitions	2.56 ^b	.14	.10	
X ₂ peer definitions	4.40 ^b	.27	.25	
X ₃ peer acts	120.07 ^b	.65	.67	
X ₄ individual definitions	19.01 ^b	-.51	-.51	

^aEach variable is part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variable is identified by upper case type and the independent variable by lower case type.

^b"F" values significant at the .05 level.

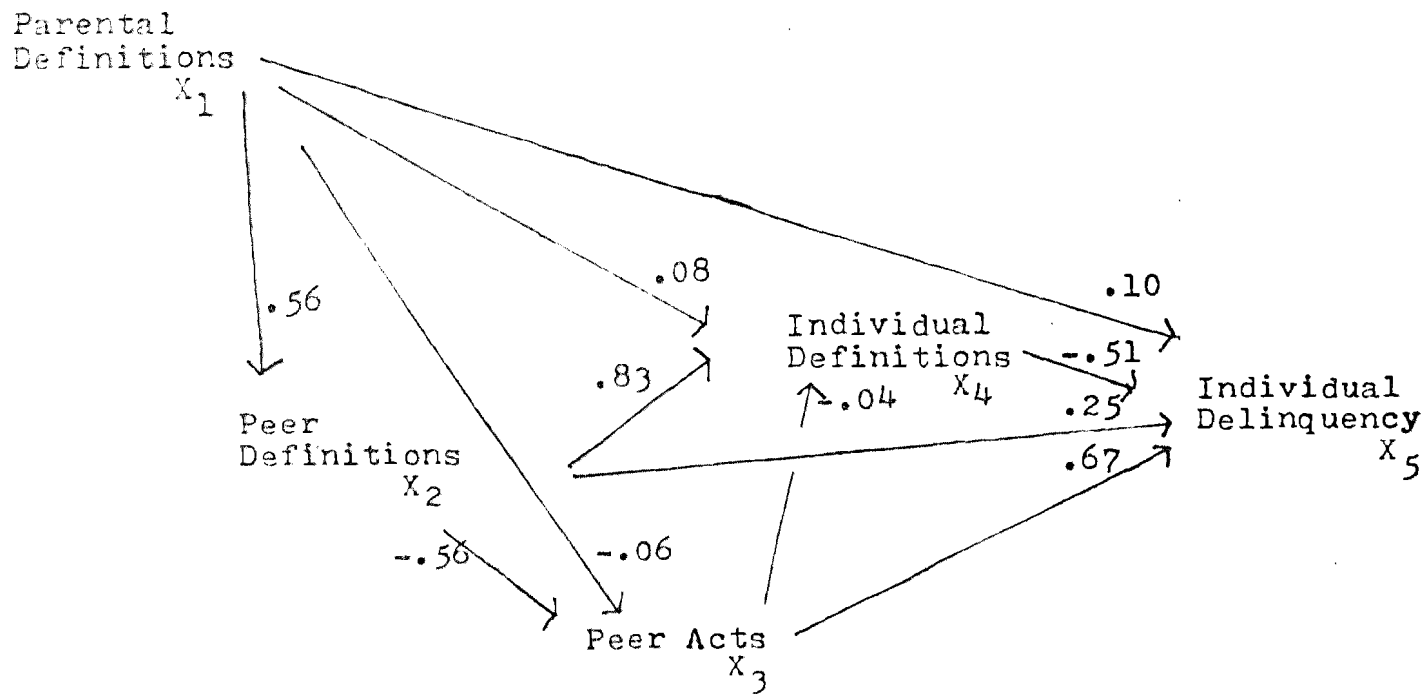


Figure 8

Path Diagram For All Paths in the Initial Causal Model
 When Tested With Data From a Sample of
 University Sophomores in 1972

for initial determination of significant paths, and all theoretical paths along with F values are included. If a calculated standardized regression coefficient was found to be non-significant when compared to a tabular F significance value, it was eliminated from the model. The elimination of non-significant paths resulted in a modification of the initial model, and a new set of recursive equations was developed. The following set of recursive equations represent the modified model:

$$\text{eq. 1} \quad X_2 = b_{21}X_1 + e_2$$

$$\text{eq. 2} \quad X_3 = b_{32}X_2 + e_3$$

$$\text{eq. 3} \quad X_4 = b_{41}X_1 + b_{42}X_2 + e_4$$

$$\text{eq. 4} \quad X_5 = b_{51}X_1 + b_{52}X_2 + b_{53}X_3 + b_{54}X_4 + e_5$$

This new set of recursive equations is a mathematical representation of the path diagram presented in Figure 9. From these equations a new set of regression coefficients were calculated. While this procedure was to be repeated until all remaining coefficients were significant at the .05 level, further path eliminations were not necessary.

The partial regression coefficients were converted into standardized regression coefficients or path coefficients and added to the diagram shown in Figure 9. The path coefficients and their F values are presented in Table 4. Examination of Table 4 and Figure 9 show that all paths are significant in the modified causal model.

Table 4

Final Determination of Significant Paths in the
Causal Model Based Upon Data Collected From
a Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	"F" ^b Value	Partial Regression Coefficient	Standardized Regression Coefficient (path coefficient)	R ²
X ₂ PEER DEFINITIONS				.31
X ₁ parental definitions	62.61	.77	.56	
X ₃ PEER ACTS				.35
X ₂ peer definitions	74.85	-.66	-.59	
X ₄ INDIVIDUAL DEFINITIONS				.82
X ₁ parental definitions	3.40	.12	.08	
X ₂ peer definitions	386.45	.92	.86	

^aEach variable is part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variables are identified by upper case type and the independent variables by lower case type.

^bAll "F" values are significant at the .05 level.

Table 4 (continued)

Final Determination of Significant Paths in the
Causal Model Based Upon Data Collected From
a Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	"F" ^b Value	Partial Regression Coefficient	Standardized Regression Coefficient (path coefficient)	R ²
X ₅ INDIVIDUAL DELINQUENCY				.67
X ₁ parental definitions	2.56	.14	.10	
X ₂ peer definitions	4.40	.27	.25	
X ₃ peer acts	120.07	.65	.67	
X individual definitions	19.01	-.51	-.51	

^aEach variable is part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variables are identified by upper case type and the independent variables by lower case type.

^bAll "F" values are significant at the .05 level.

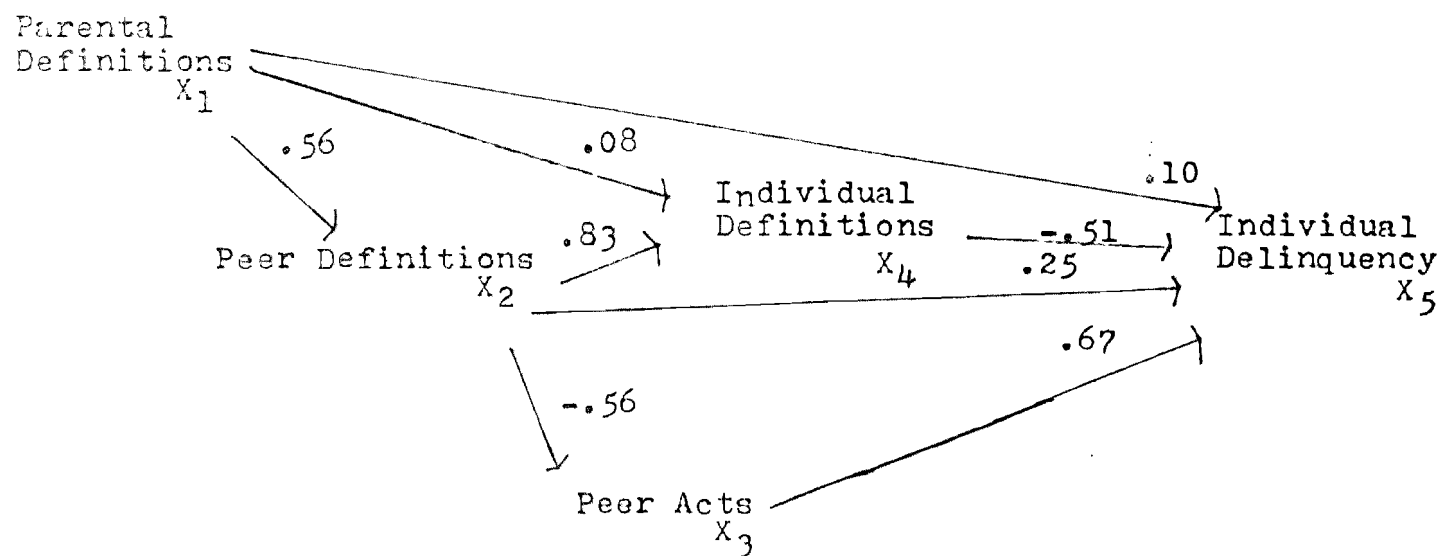


Figure 9

Path Diagram For All Paths Significant in the Final Causal Model When Tested With Data From a Sample of University Sophomores in 1972

DIRECT EFFECT OF THE VARIABLES IN THE MODEL

The causal model developed from Sutherland's theory was modified through the determination of significant paths. Once the final determination of significant paths had been made, an analysis of direct effects was possible. The calculation of direct effects allows the researcher to test for the existence of causal relationships and determine the effects of Y_1 on Y_2 . An additional advantage of the analysis of direct effects is that it permits comparison of the relative importance of two or more variables and their relative effects on the dependent variable through a comparison of path values. Direct effects (path coefficients) were calculated for all endogenous variables in the model.

Direct Effects on Individual Delinquency

The modified model suggests that four variables have a direct causal relationship with individual delinquency. The relative importance of these variables for individual delinquency can be evaluated by a comparison of their path coefficients presented in Table 4, and shown in Figure 9.

Peer acts has the greatest relative effect of the variables which cause individual delinquency, followed closely by individual definitions. It should be stressed, however, that the direction of the relationship between peer acts and individual delinquency is opposite that between self definitions and individual delinquency. These relationships

were hypothesized in the causal model. Two other variables which directly affect individual delinquency are peer definitions and parental definitions. While these variables were hypothesized to be negatively related to self acts, the appearance of a low positive relationship suggests that theoretical factors other than those specified by Sutherland should be considered in future research to explain these relationships. Such a factor might be the "shock value" or adventure provided by commission of delinquent acts.

These four variables (peer acts, parental definitions, peer definitions, and individual definitions) have a combined effect in the prediction of individual delinquency which may be interpreted from an inspection of the partial R^2 value. The R^2 value was .67 which means that the four variables affecting individual delinquency explains 67 percent of the variance in individual delinquency. The four variables contribute significantly to the explanation of personal involvement in delinquent activities.

Direct Effects on Individual Definitions

The modified causal model suggests that two variables have a direct relationship with individual definitions in the direction hypothesized by the model. The relative importance of these variables for individual definitions is evaluated by examination of their prespective path coefficients in Table 4 and shown in the path diagram in Figure 9.

Peer definitions has the greatest relative effect upon individual definitions. Its effect is 10 times greater than the effect of parental definitions. These variables (peer definitions and parental definitions) have a significant effect in the prediction of individual definitions. The multiple R^2 value is .82, indicating that these two variables alone explain 82 percent of the variance in individual definitions. Peer definitions and parental definitions contribute significantly to the prediction of individual definitions regarding delinquent activities.

Direct Effects on Peer Acts

The modified causal model suggests only one direct relationship with peer acts. The relationship with peer definitions is in the direction hypothesized in the initial model. Its importance for predicting peer acts is evaluated by the path coefficient in Table 4 and in the path diagram in Figure 9. The R^2 value is .35 which indicates that peer definitions explains 35 percent of the variance in peer acts. While the R^2 was fairly large, it is important to note that 65 percent of the variance was not explained. Other factors, not included in the model or the theory upon which the model was based, have not been identified or included. Identification of other factors would improve predictive power for peer acts, but predictive power for peer acts was not a focal point of the theory or the present research.

Direct Effects on Peer Definitions

One variable, parental definitions, has a direct effect on peer definitions in the modified causal model. The path coefficient is found in Table 4 (page 73) and Figure 9 (page 75). The partial R^2 value is .31 which means that 69 percent of the variance was not explained. Other factors contributing to peer definitions might be hypothesized and brought into the model as a means of improving the predictive power of the model for peer definitions.

ESTIMATION OF RESIDUALS

The residual value is an estimation of the effects of variables which are not included in the model. A residual value may be calculated and entered as a path if an endogeneous variable has not been completely determined by variables in the model. None of the variables included in the causal model are completely determined by other variables in the model, necessitating the introduction of residual path coefficients as estimates of the effects of all variables not in the model. These are calculated by the following formula:

$$\text{Residual Path Coefficient} = \sqrt{1-R^2}$$

Residual path coefficients were calculated for all endogeneous variables in the modified causal model. The coefficients obtained are shown in Table 5 and in the path diagram presented in Figure 10.

Residual Paths For the Model

The effects of variables not included in the model are mixed, as can be seen by a comparison of the path values with residual path values. Peer definitions and peer acts have large residual paths and therefore the effects of variables outside the system are greater than those included in the model.

The most adequately explained variables in the system are individual definitions and individual delinquency. The residual paths are lowest for these variables. Both of these variables have path coefficient values of greater magnitude than the residual path values. It should be noted that 82 percent of the variance in individual definitions and 67 percent of the variance in individual delinquency is explained without consideration of the residual path value.

One conclusion suggested by the evaluation of residual path values is that the variables in the model have significant causal effects upon other variables in the model. However, the model or the theory upon which it is based should be expanded to include variables which have not been considered here.

CALCULATION OF INDIRECT EFFECTS

Indirect effects measure the effect of one variable upon another through an intervening variable. This measure often identifies relationships which are not apparent through analysis of direct effects or residuals.

Table 5

Estimation of Residual Path Coefficients for the
Causal Model Based Upon Data Collected From a
Sample of University Sophomores in 1972

Endogeneous Variables	Modified Regression Equation Number	R^2	Residual Path Coefficient	Estimate of Residual Path Coefficient
X_2 Peer Definitions	1	.31	PD	.79
X_3 Peer Acts	2	.35	PA	.81
X_4 Individual Definitions	3	.82	IF	.42
X_5 Individual Delinquency	4	.67	ID	.57

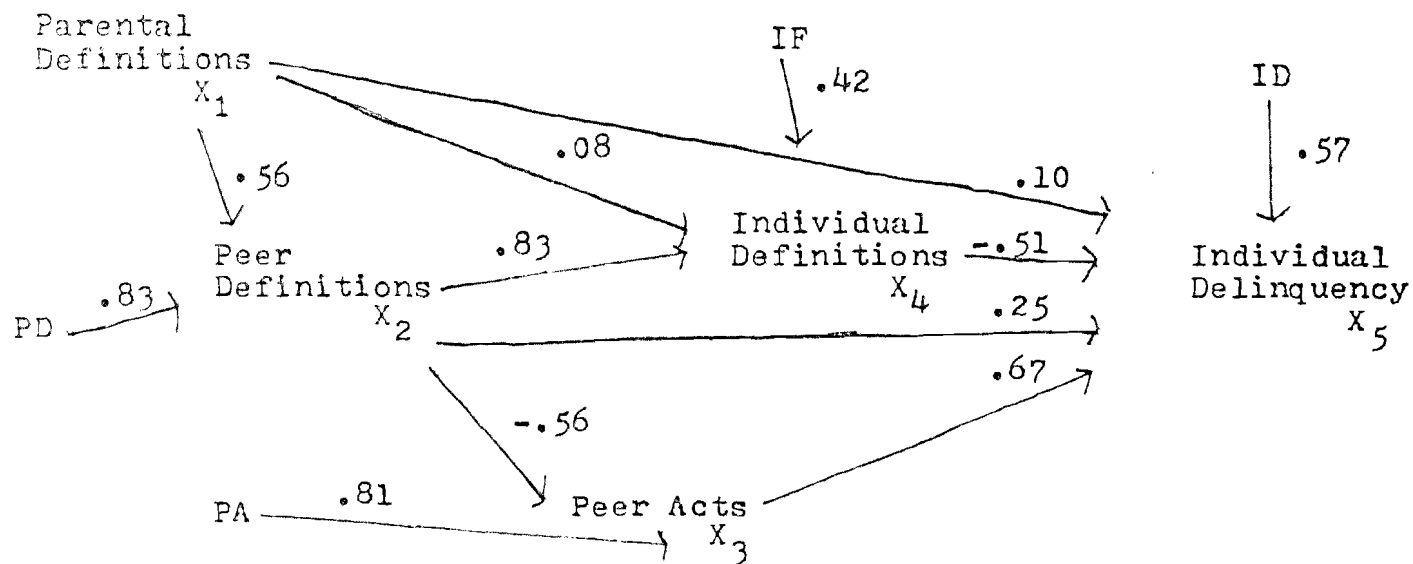


Figure 10

Path Diagram For All Paths Significant With Residual
Paths For the Causal Model When Tested With Data
From a Sample of University Sophomores in 1972

Land has presented a procedure for determining total indirect effects (TIE)¹ as follows:

$$\text{TIE} = \text{Total Effects} - \text{Total Direct Effects}$$

The total effects are represented by the correlation between two variables. The correlation coefficients for all variables are presented in matrix form in Table 6. The total direct effects are represented by the path coefficients shown in Table 4. In order to calculate the total indirect effects for each variable, the path coefficient (direct effects) for each relationship was subtracted from the correlation coefficient (total effects) shown in Table 7. The total indirect effect may be partitioned if there are other variables influencing the dependent variable. Calculation of indirect effects and subsequent analysis indicated characteristics of the relationships which could not be explicated by other procedures.

Indirect Effects for the Model

The procedure suggested by Land was utilized with all endogeneous variables in the model and reported in Table 7. The indirect effects for most of the relationships were quite small or absent indicating little or no indirect relationship and lending support for the model. However, the

¹Edgar F. Borgatta and George W. Bohrnstedt, Sociological Methodology: 1969. (San Francisco: Jossey-Bass, 1969), p. 23.

Table 6

Intercorrelation Matrix for All Variables Used in a Study
of Delinquency Conducted on a Sample of
University Sophomores in 1972

Variable ^a Number	X ₁	X ₂	X ₃	X ₄	X ₅
X ₁	1.00				
X ₂	.56	1.00			
X ₃	-.37	-.59	1.00		
X ₄	.56	.90	-.57	1.00	
X ₅	-.30	-.56	.78	-.61	1.00

^aX₁ = parental definitions, X₂ = peer definitions,
X₃ = peer acts, X₄ = individual definitions, X₅ = individual
delinquency.

Table 7

Calculation of Total Indirect Effects for All Variables
Used in a Study of Delinquency Conducted on a
Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	Total Effect (r)	Total Direct Effect (b*)	Total Indirect Effects (r-b*)
X ₂ PEER DEFINITIONS			
X ₁ parental definitions	.56	.56	---
X ₃ PEER ACTS			
X ₂ peer definitions	-.59	-.59	---
X ₄ INDIVIDUAL DEFINITIONS			
X ₁ parental definitions	.56	.08	.46
X ₂ peer definitions	.90	.86	.04

^aEach variable is a part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variable is identified by upper case type and the independent variables by lower case type.

Table 7 (continued)

Calculation of Total Indirect Effects for All Variables
Used in a Study of Delinquency Conducted on a
Sample of University Sophomores in 1972

DEPENDENT and independent variables ^a	Total Effect (r)	Total Direct Effect (b*)	Total Indirect Effects (r-b*)
X ₅ INDIVIDUAL DELINQUENCY			
X ₁ parental definitions	-.30	.10	-.20
X ₂ peer definitions	-.56	.25	-.31
X ₃ peer acts	.78	.67	.11
X ₄ individual definitions	-.61	-.51	-.10

^aEach variable is part of a network of variables that may be expressed as either independent or dependent variables. In this table, the dependent variable is identified by upper case type and the independent variables by lower case type.

total indirect effects reported in Table 7 suggest that several indirect relationships need further examination. Three relationships (parental definitions with individual definitions, parental definitions with individual delinquency and peer definitions with individual delinquency) exhibit a high magnitude of total indirect relationship. The relationships involving individual delinquency were anticipated by the theory which suggests that differential association is perhaps a two stage process, the first stage involving formation of behavior patterns based upon definitions. The strength of the relationship involving individual definitions, however, was not anticipated by the present reformulation of the theory and suggests that modification of the model or of the theory might be in order in future research. A different ordering of variables or introduction of additional variables is suggested for subsequent research efforts. Furthermore, it is suggested that partialling techniques as suggested by Land¹ may be utilized in future research to more clearly identify the sources of indirect effects and bring them explicitly into the model.

CONCLUSIONS

The use of path analysis techniques to test a causal model based upon Edwin H. Sutherland's theory of

¹Borgatta, op. cit., p. 23.

differential association has lended support to the basic generalizations underlying the theory. Although modifications were suggested for the model, none of these modifications would suggest a change in the generalizations underlying the theory. The genesis of delinquent behavior may result from either of the two processes suggested by the theory. The individual may become delinquent as a result of exposure to an excess of definitions favorable to violation of law alone or as a result of the effects that favorable definitions have upon the individual's own definitions, predisposing him to delinquent behavior. The implications of the findings of this study for the theory of differential association will be presented in Chapter 5.

Chapter 5

IMPLICATIONS OF THE RESEARCH

The findings obtained from a test of the causal model developed in this thesis have implications for several areas which are: (1) differential association theory, (2) practical application in prevention and rehabilitation programs, and (3) future research. The purpose of this chapter is to briefly discuss the relevant implications of the findings for each of these areas.

IMPLICATIONS FOR THE THEORY

The support given the causal model, based upon Sutherland's theory, indicates that delinquent behavior may result from either a one stage or two stage process of differential association. Exposure to an excess of definitions favorable to violation of law, whether internalized by the individual or not, plays an important role in the explanation of juvenile delinquency.

An examination of direct and indirect effects indicated that while all variables in the causal model were necessary to an explanation of delinquent behavior, peer definitions was the variable which most strongly influenced individual definitions. Peer acts and individual definitions were the major determinants of individual delinquency. These

relationships lend support to the general model of differential association (page 35). It was suggested during the development of the general model that individual delinquency may result when the individual has internalized definitions favorable to law violation. The relationship between individual definitions and individual delinquency lends support to this generalization in the general model. It was further suggested that individual delinquency may result when the individual is pressured by the group to conform to delinquent behavioral norms, whether these norms have been internalized by the individual or not. The relationship between peer acts (peer definitions manifested through the communication of gestures) and individual delinquency suggests that this may be the case. Since sixty-seven percent of the variance in individual delinquency was explained by the causal model developed from Sutherland's theory, it is believed that the theory contributes significantly to the explanation of individual involvement in delinquent activities.

The use of a causal modeling technique to test the theory demanded a greater specification of the theory than had been achieved in earlier research efforts. As a result of the demand for identification and clear definition of concepts and precise statement of relationships, the reformulation developed in this thesis has identified relationships not anticipated or specifically identified in Sutherland's theory. For example, the direct

relationships of peer definitions and parental definitions to individual delinquency were opposite those predicted by the theory, indicating that theoretical factors other than those specified in Sutherland's theory should be considered for a precise explanation of delinquent behavior. While these relationships (peer definitions and parental definitions with individual delinquency) would appear to negate the principle of differential association as a one stage process, their combined direct effect on individual delinquency is only about half that of peer acts. The relationship between peer acts and individual delinquency supports differential association as a one stage process. Peer definitions and parental definitions have a greater indirect effect upon individual delinquency through their relationships with individual definitions, supporting the principle of differential association as a two stage process. The finding of significant direct and indirect relationships between primary group definitions and individual delinquency indicates that the effects of differential association are more complex than had been anticipated by previous writers. It appears that differential association may operate as both a one stage and two stage process in the genesis of individual juvenile delinquency.

Two relationships predicted by Sutherland's theory (parental definitions with peer acts and peer acts with self definitions) were shown to be non-significant. The elimination of these hypothesized relationships from

the causal model of differential association (page 75) has modified Sutherland's theory as reflected in the present reformulation; but due to the high level of abstraction of the theory, reformulation was necessary for empirical verification. While modifications of this kind may be viewed as theory construction or theory building rather than theory with some empirical support contributes to the body of knowledge more than a theory which does not lend itself to empirical verification. Several writers (see Chapter 2) have stressed the need for such reformulation to permit empirical verification. While some of these writers have suggested various reformulations, none have subjected their reformulations to empirical test. The findings of the present research indicate that operationalization and empirical tests of these reformulations would be fruitful endeavors as would further reformulation and verification of Sutherland's theory.

IMPLICATIONS FOR PRACTICAL APPLICATION

While it is realized by the present writer that the findings reported from a study of a limited sample are not readily amenable to wider generalization, the possible implications of such research for the prediction, prevention and rehabilitation of delinquent behavior cannot be ignored. Several relationships suggested by the research indicate

that primary groups play an important role in the genesis of individual delinquency, and should be considered in attempts to identify, prevent or change the behavior of the delinquent individual. As Cressey pointed out, "Behavior attitudes, beliefs and values are not only the products of but also properties of groups. Consequently, attempts to change individual behavior should be directed at groups."¹ The findings of the present investigation support Cressey's contention and further specify the points at which intervention is most likely to be successful.

Intervention to prevent further delinquency on the part of the individual delinquent on the basis of the present research on differential association theory requires consideration of the two processes through which the individual may become delinquent. Efforts to rehabilitate the individual must take into account the attitudes and behavior of his primary group members and their effects on the individual's attitudes and behavior. The research reported in this thesis indicated that a lasting change in the individual's definitions is unlikely unless the definitions of the primary group members are also changed. Therefore, a change in the individual's definitions,

¹Donald R. Cressey, "Changing Criminals: The Application of the Theory of Differential Association," American Journal of Sociology, LXII (September, 1955), 116.

predisposing him to delinquent behavior, must be accompanied or preceded by a similar change in the definitions of members of the primary group. The research also indicated that while delinquent behavior may result when definitions favorable to violation of law are internalized by the individual, this same behavior may result from group pressures to conform. It may be necessary, therefore, to change the behavior of members of the group to effect a change in the individual's behavior. From the perspective of the differential association processes, attempts to rehabilitate the individual delinquent would involve either the removal of the individual from his pro-delinquency primary group and placement in an anti-delinquency group or a basic change in the definitions and behaviors of the primary group members.

IMPLICATIONS FOR FUTURE RESEARCH

The present investigation had as its objectives the reformulation of Sutherland's theory as it relates to the genesis of delinquent behavior and a limited empirical test on a sample of middle-class university sophomores. The use of modeling techniques for meeting these objectives pointed out the need for greater specification of concepts and propositions and the more general need for reformulation of the theory for empirical testing.

While the investigation supported the causal model, the research findings indicated that other factors, not specified by Sutherland's theory, might be identified within the differential association framework to more adequately explain the genesis of delinquent behavior. Identification of these concepts and specification of their relationships is suggested for future research.

The use of path analysis to evaluate the causal model enabled the researcher to examine both direct and indirect effects for the variables in the model. The use of these techniques to determine both direct and indirect effects was particularly important to a test of the theory since differential association may be viewed as either a one stage or two stage process. Effects of differential association as a one stage process may be assessed by an examination of direct effects and the effects of differential association as a two stage process may be evaluated by an examination of indirect effects. While both direct and indirect effects were examined in the present investigation, it is suggested that partialling techniques might be used to further specify indirect relationships.

Sutherland has suggested that the theory of differential association is capable of explaining all criminal behavior. If this is the case, a causal model based upon Sutherland's theory should find application to the genesis of all individual criminal behavior in all populations. In order to test this assertion, it is

suggested that the present investigation be replicated on a number of different types of populations exhibiting varying types of criminal behavior as well as delinquent behavior.

Chapter 6

SUMMARY

The general objective of this thesis was to investigate the effectiveness of Edwin Sutherland's theory of differential association for explaining the genesis of individual juvenile delinquency through an empirical test of a causal model based upon the theory. The real world problem was delineated by reference to the economic and human costs, incurred as a result of juvenile delinquency, which have led to a search for the causes of delinquency. A general statement of the sociological perspective was presented to provide a theoretical framework within which the study was conducted.

The specific objectives of the research were stated in Chapter 1 and included: (1) identification of concepts and propositions at a theoretical level which are representative of differential association theory, (2) development of empirical measures for the relevant concepts, (3) building of an adequate causal model with path analysis techniques to explain and predict delinquency in the context of differential association theory and (4) discussion of the implications of the present research and suggestions for future research.

In Chapter 2, the evolution of Sutherland's theory of differential association was presented and discussed

to provide a theoretical framework for the investigation of the genesis of delinquent behavior. Both the original version of the theory introduced in 1939 and its present reformulation introduced in 1947 were presented and discussed. A review of the literature that developed in response to Sutherland was presented to indicate the theory's perceived strengths and weaknesses. Responses to the theory were of four types: (1) those which sought to demonstrate the applicability of the theory, (2) those which utilized Sutherland's theory as a basis for empirical research, (3) those which sought practical application of the theory to problems of delinquency prevention and control and (4) those which suggested or proposed reformulation of the theory. Material representing each of these response types was presented and discussed in order to suggest issues, concepts and propositions relevant to a test of the theory.

After the initial review of the literature, the present writer focused upon Sutherland's theory, as reformulated in 1947 and its clarification by De Fleur and Quinney in 1966 to further identify and clarify concepts and hypotheses for an empirical test of differential association theory. Five concepts were introduced, nominally defined and relationships to other concepts were suggested through the utilization of verbal specifications and diagrammatic representations. A causal model was developed through this process to explain the genesis of individual juvenile

delinquency. The concepts utilized in the construction of the model were: parental definitions, peer definitions, peer acts, individual definitions, and individual delinquency. Ten hypothesized relationships between these concepts were diagrammed and the ten proposed relationships were discussed. Figures 3 through 6 (pages 38-41) illustrated the development of propositions and Figure 7 (42) illustrated the total causal model with all relationships specified.

In Chapter 3, the research sample was identified as a random sample of university sophomores enrolled in a small, private university in the midwest. An analysis of demographic characteristics indicated that the respondents were primarily white, unmarried university sophomores on the average 19 years of age. The majority of the respondents were from middle and upper class backgrounds. After the research sample had been identified, the development of the research instrument (a mail-out questionnaire) was discussed.

The variables identified in the causal model were operationalized by reference to the questionnaire and scales were developed to measure each variable. A five-point scoring method was used to construct Likert-type and numeric scores for each of the variables. To assess whether the scores obtained were scales, empirical evidence such as intercorrelation of items and reliability coefficients was examined. It was concluded that scales had been obtained.

The statistical technique of path analysis was introduced to evaluate the causal model. The advantages

of path analysis and the assumptions required for its use were presented and discussed in terms of the present investigation. The steps to be followed in the use of path analysis were listed to clarify the nature of the procedures. An initial set of recursive regression equations was developed to represent the causal model shown in Chapter 2 (page 42).

The research findings were presented in Chapter 4 of the thesis. The findings were presented first in terms of the path analysis procedure for determination of significant paths. Two of the ten hypothesized paths were dropped from the model and a new set of recursive regression equations was developed. An examination of direct effects for the variables indicated support for differential association as a one stage process, and an examination of indirect effects indicated support for differential association as a two stage process. Sixty-seven percent of the variance in individual delinquency was explained by the causal model. Residual paths were calculated to represent unexplained variance for the variables in the model. The path diagram for the model with all paths significant was presented in Figure 10 (page 82).

In Chapter 5, the implications of the research for differential association theory, for practical application to problems of delinquency prevention and control and for future research were discussed. In terms of the implications for the theory, it was suggested that the

role of differential association in the genesis of individual juvenile delinquency could be viewed as both a one stage or a two stage process. While the research lendded support to the causal model developed from Sutherland's theory, it was suggested that other factors should be considered for a more comprehensive explanation of juvenile delinquency.

In terms of the implications for practical application to problems of prevention and control of delinquent behavior, it was pointed out that attempts to rehabilitate offenders must take into account the attitudes and behavior of the members of the primary groups of which the individual is a part. A successful program of rehabilitation would require the removal of the individual from his pro-delinquency primary groups and placement in anti-delinquency groups or a lasting change in the attitudes and behavior of members of the primary groups.

The discussion of the implications for future research focused on the advantages of the techniques used in the thesis for specifying Sutherland's theory. It was suggested that replication of the research using these techniques to test the theory for other types of criminal behavior on various populations would be fruitful.

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APPENDIXES

A. Questionnaire

Form B
Random Study

This questionnaire is an attempt to discover views about and participation in activities currently defined delinquent in the state of Iowa. Your answers are essential to a larger study coming out of this research. Please answer all questions as accurately and honestly as possible. Your answers will remain completely anonymous and your identity will never be known. Thank you for your cooperation.

DO NOT WRITE YOUR NAME ON THE QUESTIONNAIRE

- I. Please provide the following information about yourself. Place an X or a ✓ in the blank in front of the response which most accurately describes you.

1. Sex: ☐ male

☐ female

2. Age: ☐ Under 18 ☐ 22

☐ 18 ☐ 23

☐ 19 ☐ 24

☐ 20 ☐ 25 and over

☐ 21

3. Race: ☐ white

☐ black

☐ oriental

☐ Spanish-American

☐ other, please specify _____

4. Citizenship:

☐ native U.S. citizen

☐ naturalized U.S. citizen

☐ foreign national

☐ other, please specify _____

5. Marital Status:

☐ never married ☐ married, no children

☐ divorced ☐ married, children

☐ separated ☐ other, please specify:

☐ spouse deceased

II. The questions which follow provide information about your parents. Please answer each question by placing an X or a ✓ in the blank in front of the response which most accurately reflect their characteristics.

1. Is your father:

____ self-employed ____ unemployed
____ employed by others ____ does not apply

2. What is the highest grade in school your father completed?

____ graduate or professional degree
____ university or college degree
____ partial college, junior college or associate degree
____ vocational or technical training
____ high school graduate
____ grades 10 or 11
____ grades 7 - 9
____ less than 7th grade
____ does not apply

3. What is your father's age?

____ 40 or under ____ 61 to 65
____ 41 to 45 ____ 66 to 70
____ 46 to 50 ____ over 70
____ 51 to 55 ____ deceased
____ 56 to 60

4. What is your mother's age?

- | | |
|--------------------------------------|-----------------------------------|
| <input type="checkbox"/> 40 or under | <input type="checkbox"/> 61 to 65 |
| <input type="checkbox"/> 41 to 45 | <input type="checkbox"/> 66 to 70 |
| <input type="checkbox"/> 46 to 50 | <input type="checkbox"/> over 70 |
| <input type="checkbox"/> 51 to 55 | <input type="checkbox"/> deceased |
| <input type="checkbox"/> 56 to 60 | |

5. Are your parents:

- ☐ living together
- ☐ separated
- ☐ divorced
- ☐ father deceased
- ☐ mother deceased
- ☐ other, please specify _____

6. Which of the following most accurately describes your home community?

- ☐ rural - farm
- ☐ rural - but near urban center
- ☐ urban - under 10,000 population
- ☐ urban - under 50,000 but over 10,000 population
- ☐ urban - under 200,000 but over 50,000 population
- ☐ urban - under 1,000,000 but over 200,000 population
- ☐ suburban - under 25,000 population
- ☐ suburban - over 25,000 population

III. The Department of Labor now describes over 2,000 job categories now in existence. Since it is impossible in a limited amount of space to list all occupation in the blanks provided. Please be specific and give both job title and type of organization. (example - Job Title Sales Representative Type or Organization nation-wide chemical company.)

1. What is your father's occupation? (If unemployed or deceased, what was his most recent occupation?

Job Title _____

Type of Organization _____

IV. The following list is a number of activities that are not uncommon among individuals at some time in their life-cycles. Please specify to the best of your knowledge in which of these behaviors you and your friends have been participants. To do this, place an X or a ✓ in the grid in column 1 for those responses which most accurately describe your participation. After you have completed column 1, go on to column 2 and answer each question for your best friend. Column 3 should be completed in the same manner for your friend of longest duration. Column 4 should be completed in the same manner for your most frequent companion.

	<u>Self</u>	<u>Best Friend</u>	<u>Longest Friend</u>	<u>Most Frequent Companion</u>
	Column 1	Column 2	Column 3	Column 4
	Never 1-2 times 3-4 times 5-6 times more than 6 times	Never 1-2 times 3-4 times 5-6 times more than 6 times	Never 1-2 times 3-4 times 5-6 times more than 6 times	Never 1-2 times 3-4 times 5-6 times more than 6 times
1. Engaged in fist fights with others				
2. Broke into a building with intent to steal				
3. Stole money or objects worth between \$5 and \$50				
4. Illegally consumed alcoholic drinks				
5. Shoplifted from a store				

	Self	Best Friend	Longest Friend	Most Frequent Companion
	Column 1	Column 2	Column 3	Column 4
	Never	Never	Never	Never
	1-2 times	1-2 times	1-2 times	1-2 times
	3-4 times	3-4 times	3-4 times	3-4 times
	5-6 times	5-6 times	5-6 times	5-6 times
	more than 6	more than 6	more than 6	more than 6
16. Intentionally set fire to anothers property				
17. Made illegal use of anothers credit card				
18. Sold drugs other than marijuana to another				
19. Brought, received, or possessed stolen goods				
20. Intentionally damaged or destroyed public property				
21. Stole money or objects from a private individual				
22. Assaulted someone with a weapon				
23. Used drugs other than marijuana				
24. Stole money or property worth more than \$50				
25. Stole money or property from a chain store				
26. Drove a car without a license				
27. Engaged in sexual intercourse with one engaged to				

- V. The generation gap has been a popular subject of conversation in the past few years. It is important that we gauge the extent of this gap, if one exists, on the subject of the seriousness of the activities which are defined as being delinquent. For each of the activities listed below, please specify in column 1 how serious you believe the activity to be. In column 2 specify how serious the activity is to persons of your parents generation. In column 3 specify how serious the activity is to your friends. Place an X or a . in the grid for those responses which most accurately describe your estimation.

	<u>Self</u>					<u>Parents</u>					<u>Friends</u>				
	Column 1					Column 2					Column 3				
	Not serious	Not very serious	Somewhat serious	Serious	Very serious	Not serious	Not very serious	Somewhat serious	Serious	Very serious	Not serious	Not very serious	Somewhat serious	Serious	Very serious
1. Engaging in fist fights															
2. Breaking and entering with intent to steal															
3. Stealing money or objects worth \$5 to \$50															
4. Illegally consuming alcoholic beverages															
5. Using marijuana															
6. Robbing a person by threatening with weapon															
7. Homosexual acts															

	Self Column 1	Parents Generation Column 2	Friends Column 3
	Not serious	Not serious	Not serious
	Not very serious	Not very serious	Not very serious
	Somewhat serious	Somewhat serious	Somewhat serious
	Serious	Serious	Serious
	Very serious	Very serious	Very serious
8. <u>Shoplifting from store</u>			
9. <u>Premarital sexual intercourse</u>			
10. <u>Stealing car, motorcycle, or other vehicle</u>			
11. <u>Stealing money or objects worth less than \$5</u>			
12. <u>Sexual intercourse with "casual date"</u>			
13. <u>Sale of marijuana to another person</u>			
14. <u>Check forgery</u>			
15. <u>Sexual intercourse with "steady date"</u>			
16. <u>Intentionally setting fire to another's property</u>			
17. <u>Illegal use of another's credit card</u>			
18. <u>Sale of drugs other than marijuana</u>			
19. <u>Purchase, receipt, possession of stolen goods</u>			

	Self	Parents	Friends
	Column 1	Generation Column 2	Column 3
	Not serious	Not serious	Not serious
	Not very serious	Not very serious	Not very serious
	Somewhat serious	Somewhat serious	Somewhat serious
	Serious	Serious	Serious
	Very serious	Very serious	Very serious
20. <u>Theft of money or property from an individual</u>			
21. <u>Assault with weapon</u>			
22. <u>Use of drugs other than marijuana</u>			
23. <u>Theft of objects or money worth more than \$50</u>			
24. <u>Theft of money or property from a chain store</u>			
25. <u>Driving a car without a license</u>			
26. <u>Sexual intercourse with person engaged to</u>			
27. <u>Intentionally destroyed public property</u>			

B. Measurement of Variables

Each of the variables which appear in the causal model are measured by scale scores. This appendix contains the items which were used to construct a scale for each of the variables. Each section contains the items, response categories and codes for each measure.

Parental Definitions X₁

This variable was measured by a scale constructed from fourteen items in the questionnaire. The respondent was asked to indicate how serious the listed items were to persons of their parent's generation. These items, their response categories and codes are listed below. A total parental definitions score was obtained by summing the response codes for all fourteen items. This score had a theoretical range of 0 to 70. The observed range was 22 to 70.

Items

1. Shoplifting from a store
2. Engaging in fist fights
3. Illegally consuming alcoholic beverages
4. Using marijuana
5. Premarital sexual intercourse
6. Stealing money or objects worth less than \$5
7. Sexual intercourse with "casual date"
8. Sale of marijuana to another person

9. Sexual intercourse with "steady date"
10. Sale of drugs other than marijuana
11. Purchase of, receipt, possession of stolen goods
12. Use of drugs other than marijuana
13. Theft of money or property from a chain store
14. Sexual intercourse with person engaged to

<u>Response categories</u>	<u>Code</u>
no response	0
Not serious	1
Not very serious	2
Somewhat serious	3
Serious	4
Very serious	5

Peer Definitions X₂

Peer definitions was measured by a scale constructed from fourteen items in the questionnaire. The respondent was asked to indicate how serious the listed items were to his friends. The items, their response categories and codes are listed below. A total peer definitions score was obtained by summing the response codes for all items. This score had a theoretical range of 0 to 70 and an observed range of 0 to 61.

Items

1. Shoplifting from a store
2. Engaging in fist fights
3. Illegally consuming alcoholic beverages

4. Using marijuana
5. Premarital sexual intercourse
6. Stealing money or objects worth less than \$5
7. Sexual intercourse with "steady date"
8. Sale of marijuana to another person
9. Sexual intercourse with "steady date"
10. Sale of drugs other than marijuana
11. Purchase of, receipt, possession of stolen goods
12. Use of drugs other than marijuana
13. Theft of money or property from a chain
14. Sexual intercourse with person engaged to

<u>Response categories</u>	<u>Code</u>
no response	0
Not serious	1
Not very serious	2
Somewhat serious	3
Serious	4
Very serious	5

Peer Acts X₃

This variable was measured by a composite scale constructed from three fourteen-item scores. The respondent was asked to indicate how frequently persons identified as best friend, longest friend, and most frequent companion had committed the listed delinquent acts. Total scores were obtained for each of the categories of friends by summing the response codes for all fourteen items. Each of these category scores was divided by three and the resulting

scores added to obtain a total peer acts score. The items used to obtain category scores, their response categories and codes are listed below. The theoretical range for the peer act score was 0 to 70, the observed range was 0 to 60.67.

Items

1. Shoplifting from a store
2. Engaging in fist fights
3. Illegally consuming alcoholic beverages
4. Using marijuana
5. Premarital sexual intercourse
6. Stealing money or objects worth less than \$5
7. Sexual intercourse with "casual date"
8. Sale of marijuana to another person
9. Sexual intercourse with "steady date"
10. Sale of drugs other than marijuana
11. Purchase of, receipt, possession of stolen goods
12. Use of drugs other than marijuana
13. Theft of money or property from a chain store
14. Sexual intercourse with person engaged to

<u>Response categories</u>	<u>Code</u>
no response	0
Never	1
1-2 times	2
3-4 times	3
5-6 times	4
More than 6 times	5

Individual Definitions X₄

Individual definitions was measured by a scale constructed from fourteen items in the questionnaire. The respondent was asked to indicate how serious he considered the listed items. These items, their response categories and codes are listed below. A total individual definitions score was obtained by summing the response codes for all fourteen items. This score had a theoretical range of 0 to 70. The observed range was 16 to 62.

Items

1. Shoplifting from a store
2. Engaging in fist fights
3. Illegally consuming alcoholic beverages
4. Premarital sexual intercourse
5. Using marijuana
6. Stealing money or objects worth less than \$5
7. Sexual intercourse with "casual date"
8. Sale of marijuana to another person
9. Sexual intercourse with "steady date"
10. Sale of drugs other than marijuana
11. Purchase of, receipt, possession of stolen goods
12. Use of drugs other than marijuana
13. Theft of money or property from a chain store
14. Sexual intercourse with person engaged to

<u>Response categories</u>	<u>Code</u>
no response	0
Not serious	1
Not very serious	2
Somewhat serious	3
Serious	4
Very serious	5

Individual Delinquency X₅

This variable was measured by a scale constructed from fourteen items in the questionnaire. The respondent was asked to indicate the frequency with which he had committed the listed delinquent acts. These items, their response categories and codes are listed below. A total individual delinquency score was obtained by summing the responses for all items. This score had a theoretical range of 0 to 70. The observed range was 15 to 63.

Items

1. Shoplifting from a store
2. Engaging in fist fights
3. Illegally consuming alcoholic beverages
4. Using marijuana
5. Premarital sexual intercourse
6. Stealing money or objects worth less than \$5
7. Sexual intercourse with "casual date"
8. Sale of marijuana to another person
9. Sexual intercourse with "steady date"

10. Sale of drugs other than marijuana
11. Purchase, receipt, possession of stolen goods
12. Use of drugs other than marijuana
13. Theft of money or property from a chain store
14. Sexual intercourse with person engaged to

<u>Response categories</u>	<u>Code</u>
no response	0
Never	1
1-2 times	2
3-4 times	3
5-6 times	4
More than 6 times	5